# A process for managing benefits of mobile enterprise applications in the insurance industry

by

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# Foreword

I would like to thank my supervisor Associate Professor Lisa Seymour for the many years of support and help while I completed this journey. A special thanks to my friends and family for being understanding and supporting me while I completed my thesis. This PhD journey was a very enriching process, and many people assisted me along the way and to them that I haven't mentioned, thank you very much.

# DECLARATION

This dissertation is the result of my own work and includes nothing, which is the outcome of work done in collaboration except where specifically indicated. It has not been previously submitted, in part or whole, to any university or institution for any degree, diploma, or other qualification.

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# ABSTRACT

Mobile enterprise applications (MEAs) are found in increasing numbers in organisations as smart-devices become an everyday necessity amongst employees and customers. Large amounts are invested in these applications, so it is important to see the value in improved business processes and the consequential improvement in business performance. Realising the benefits from their use is important to obtain the value from these investments. Yet, benefits management (BM) is poorly implemented in companies and a first step to improve this situation is to improve the visibility of the benefits that can be achieved by using MEAs. Hence the primary question asked in this study is "How can MEA benefits be successfully realised?" The strategy used to answer the question was action research in a single organisation using three MEAs in two different action research cycles. The study was conducted in a short-term insurance company in the Western Cape of South Africa with an established IT and project capability. Globally, the short-term insurance industry is under a significant threat from disruption by market entrants who don't have to navigate legacy systems and who are more agile with their product offerings. Traditional insurers are looking for innovative solutions to transform the way in which insurance is sold and serviced. A BM process, which was modified from the literature, was refined through action cycles in three MEA projects to improve benefits realisation. The result showed that for MEA projects, which are not very large investments relative to other IT projects, a lighter, less cumbersome process was more practical and acceptable in the organisation. The creation of a benefits and risks template, during the action cycles, helped the organisation to build stronger business cases for MEA projects and also allowed for more comprehensive benefit identification, measurement and tracking, ultimately realising business performance improvements. The study also used a survey amongst 88 brokers and assessors to determine the factors which influence their adoption of these MEAs. The most significant factors influencing user adoption were the company's willingness to fund the smart-devices, the ease of use of the MEA, job relevance and location dependence. A limitation of this study is that the organisation has a particular approach to project funding whereby the importance of BM is weighed against the cost of the project, hence BM is more important for very expensive projects. While the model prescribed in this study was sufficient in this context, it may not be suitable for organisations that are more conscientious about BM. This model would need to be tested in other contexts

for transferability. A further limitation was the duration of time available for conducting this study because this was a PhD research project. Further action cycles might have refined the process further.

The findings from this study are relevant to researchers and to organisations wanting to deploy MEAs. The BM process defined in this study can be used in MEA projects as a process to manage the identified benefits and ensure that they are realised. The benefits template can be used as a first step in the BM process to build the business case and the risks template can be used to identify potential problems that could hinder benefits realisation and can used to put mitigating actions in place to prevent problems to benefits realisation. The identification of factors influencing adoption of MEA can help organisations focus on these factors to ensure that their MEAs are used and they thereby derive benefits. The theoretical contributions of this study are a process model for the BM body of knowledge and a model explaining the factors influencing symbolic adoption of MEA. The identification and description of benefits and risks extends the body of knowledge for mobile applications research. These specific issues in the context of MEAs in the short-term insurance industry are understudied.


## KEYWORDS

Mobile enterprise applications; mobile apps; Benefits management; Benefits realisation; MEA adoption


## PUBLICATIONS

Knoesen, H., & Seymour, L. F. (under review). *Building the business case for mobile enterprise applications in the insurance industry*. Paper submitted to the European Conference on Information Systems 2019.

Knoesen, H., & Seymour, L. F. (2016). *Designing a process for identifying and managing the benefits of mobile enterprise applications in the insurance industry*. Paper presented at the Proceedings of the Annual Conference of the South African Institute of Computer Scientists and Information Technologists, 18.

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# Contents

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# 1. Introduction

The advancement of mobile technologies and the resultant rise in the use of mobile apps (applications) over the past decade has resulted in the ubiquitous use of these technologies (Hasan, Gomez & Kurzhofer, 2013; Hoos, Groger, Kramer & Mitschang, 2014). Estimates show that by 2022 there will be over 3.8 billion smartphone users (Forrester, 2017). Other evidence of this shift in mobile technology adoption is that mobile traffic was set to grow to 52% of all website traffic in 2018, up from 50.3% in 2017 (Statista, 2018). Since the introduction of the iPhone in 2007, there has been a rapid growth in mobile apps (Giessmann, Stanoevska-Slabeva, & De Visser, 2012). By 2017 there had been approximately 197 billion apps downloaded (Statista, 2018).

Companies too are experiencing this shift in behaviour. Market research showed that 87% of employers expected their employees to use their smartphones for work-related activity (Viasasha, 2017). Also, a survey by Information Age in 2017 found that CIOs recognised that enterprise mobility is a core component of digital transformation (Ismail, 2017). While these applications have been consumer driven, it has resulted in interest in mobile apps for enterprises too (Pettey, 2011). Mobile apps used in business are called mobile enterprise applications (MEAs), and they are one of the top ten strategic technology trends since 2014 (Hoos, Groger, Kramer & Mitschang, 2015). What this growth in mobile use shows is the fact that millions of people now understand, perceive, and interact with the world in a completely new manner (Manyika et al., 2013). Mobility is one of the most important current market and technology trends affecting information and communication technology (ICT). A concerning finding was that 55% of the managers did not have a long-term strategy for the use of mobile enterprise apps within their business processes. Companies do not have strategies of how to utilise and derive maximum benefit from this new technology. While public facing apps are commonplace, MEAs are less so due to their newness in an organisation setting.

Giessmann et al., (2012) defined MEA as, "… applications that are designed for and are operated on mobile devices and which facilitate users within the core and/or support processes of their enterprises". One of the primary drivers of the prioritization of MEA development by senior management is the demand for MEA based on improvements of handheld devices, which are capable of running multiple applications and crunching vast amounts of data offline while relying on wireless connectivity to access huge datasets using

enterprise applications wherever they may be. Three other drivers that are accelerating the demand for mobile access to enterprise applications are; executive demand, an increasingly mobile workforce, and customer's demand for real-time information and services (Mordhorst, 2014). Enterprise mobility is characterized by organisations integrating mobile technologies into their existing IT infrastructure to give employees the ability to work while on the move (Hasan et al., 2013). The business opportunities created by smart mobile devices are enabled by mobile apps (Ovcjak, Hericko & Polancic, 2015). For this study, the mobile apps being discussed are those which run on smartphones and tablets. These mobile apps have a simple touchscreen-based interface and can be used anytime and anywhere (Clevenger, 2011). MEA differ from earlier mobile apps running on mobile devices such as laptops, PDAs and mobile phones by the technical capabilities of the smart mobile touch-based devices and also by the manner in which they are developed, distributed and consumed by users which is known as the mobile ecosystem (Hoos et al., 2015). Several technical, as well as organisational challenges, however, need to be overcome to leverage MEA (Hoos et al., 2015).

Traditionally enterprise computing was performed in a static location on a desktop computer. Mobile computing has had a disruptive influence on the manner in which enterprise computing is performed. There is a multitude of advantages for organisations considering mobility (Hasan et al., 2013). The technical benefits of mobility include amongst others, ubiquity, context sensitivity, interactivity, convenience, and multimodality (Schierholz, Schierholz, Kolbe & Brenner, 2007). These technical advantages in and of themselves do not add any business value. However, value can be derived from the organisation when used to improve business processes by allowing for flexibility; organisational efficiency; individual productivity and effectiveness; transparency; and entertainment (Schierholz et al., 2007). MEA are exploiting this technology benefit. The utilization of mobile apps in enterprises creates new opportunities for business process improvements as well as completely new ways of performing old business practices and processes (Hoos et al., 2015). For example, the replacement of paper-based data collection is one improvement enabled by MEA. They can be used for business services such as mobile Customer Relationship Management that includes mobile marketing, mobile sales force automation, mobile field service, and mobile customer service. MEA allow for real-time access to business information which supports decision making and facilitates rapid fulfilment of customer's needs, thereby increasing

worker productivity and reducing business operation costs (Hurley, Lai & Piquet, 2011; Ranjan & Bhatnagar, 2009).

For several years, IT managers have been grappling with the proliferation of new MEAs. A 2011 study found that forty-five percent of respondents believed that implementing and managing new MEA took priority over other common issues such as managing IT budgets. Furthermore, the same study found that fifty-six percent believed that customising company data for mobility was not merely nice to have but in fact a critical need to do business in the future (Kelton Research, 2011). In an IDC Research Services online survey performed in 2012, it was found that more than half of the respondents had deployed an industry-specific mobile app and that half had deployed mobile apps for specific departments, such as finance, human resources, sales, and field services (Arxan, 2016).

## 1.1 Justification for this research

With this increasingly rapid growth in MEA and the consequential growth in IT spend which this growth demands within organisations, it is necessary to understand the benefits and value that may be derived for the organisation as well as for the users of these MEA (Gebauer & Shaw, 2004; Giaglis, Rangone & Renga, 2006; Picoto, Palma-dos-Reis & Belanger, 2010; Vuolle, 2011). While there is a sense that these new mobile apps can be utilized in various business environments (Gebauer, Shaw & Zhao, 2002, Hoos et al., 2015), there is a lack of understanding of how they might improve business processes and how to manage their impact (Chen & Nath, 2004; Gebauer & Shaw, 2004; Picoto et al., 2010; Vuolle, 2011).

The use of mobile apps in the work context is at the adoption and learning phase in most companies. IT investments are all too often based on the belief in the benefits and not on actual measurement of the benefits (Vuolle, 2011). The impact of IT projects on an organisation can be managed with explicit benefits realisation programmes (Ashurst, Doherty & Peppard, 2008). Such a programme can be defined as 'the process of organizing and managing, such that the potential benefits arising from the use of IT are actually realised' (Ward & Elvin, 1999). Research has demonstrated that companies usually do not have the ability to measure the overall impact of these applications, therefore, identifying the real benefits are troublesome (Vuolle, 2011). The measurement of the intangible and non-financial benefits of using a technology have been reported on but due to the complexity of

this measurement they are most often neglected, and the accrued benefits of using these applications are underestimated (Gunasekaran, Ngai & McGaghey, 2008; Irani, 2002; Vuolle, 2011). Organisations benefit most from IT projects when benefits are identified up-front and managed throughout the project lifecycle (De Moraes, Cuhna & Terlizzi, 2017). Benefit management (BM) is according to De Moraes et al. (2017), "a discipline that manages concepts that function in parallel to project management. It aims to deliver a project's benefits". According to Badewi (2016), there is a lack of empirical evidence in the literature of the value of adopting IT benefit management which this thesis aimed to address.

Vuolle (2011) identified performance impacts of mobile services at four different levels, yet she only went as far as operationalizing and measuring the impacts from one perspective, namely the productivity-related impacts perceived by users at the individual level. What is missing are company-level as well as objective measures at the individual level on how MEA affect the organisation's employees, structures, relations and monetary aspects (Vuolle, 2011). By understanding the impacts and the resulting changes that could lead to process improvements as well as other benefits, derived from introducing MEA in an organisation, the value of these investments could be maximised. There is a growing body of evidence that shows, the use of benefit management practices enhances the likelihood of IT investments achieving organisational goals (Breese, Jenner, Serra, & Thorp, 2015) therefore understanding these benefits becomes crucial.

While it is true that much research has been conducted which examines mobile apps for public consumption, an examination of the literature for MEA shows that there is still a gap in this area. The high availability of mobile apps for consumers accentuates the need for organisations to integrate mobile apps into their channel strategies (Hoehle et al., 2012). However, the issues pertaining to mobility in an organisation context have been researched for more than a decade under numerous other topics such as mobile enterprise (Stieglitz & Brockmann, 2012) which investigates the implications of all forms of mobility in organisations; mobile business services (Markova & Aula, 2007; Vuolle, 2011) and mobile business (Picoto et al., 2010; Scornavacca & Barnes, 2008) which describes the ability to conduct business tasks on a mobile device irrespective of mobile platform. Additionally, mobile internet (Giaglis et al., 2006) investigates mobile business transacting on the internet; and mobile apps (Gebauer & Shaw, 2004; Nah, Siau & Sheng, 2005; Ngai & Gunasekaran, 2007) which refer to any

application on a mobile device such as a laptop. There are several differences between smart devices and earlier mobile devices such as PDAs and laptops which were the basis for most of these prior studies. These early studies remain relevant to the present discussion because MEA on smart devices are merely the latest manifestation of these earlier mobile apps and the means by which mobility is enabled for business systems and business processes on smart mobile devices.

The concept of a mobile business service, was defined by Vuolle and Kapyla (2010) as "a service that consists of communication activities or activities related to information recording, processing, delivery and/or use which are done with a mobile device via mobile/wireless networks as part of organisational processes for the benefit of the customer organisation". Mobile business services exist to provide value not only for individuals (employees of the company) but also for the organisation that determines the use context (Vuolle & Kapyla, 2010). Mobile apps can have an impact on organisational transformation by impacting on business processes as well as work practices (Giaglis et al., 2006). To measure the value of MEA investment, it is first necessary to identify the total benefits and impacts on business performance (Vuolle, 2011).

IT has no inherent value (Peppard, Ward & Daniel, 2007). The value of technology does not exist because the technology is possessed by the organisation, it results from the benefits derived from the effective use of the technology (Peppard, Ward & Daniel, 2007). It is for this reason that it is important that users adopt and use a MEA so that the anticipated benefits can be realised. The factors which can hinder the adoption need to be understood and mitigated for benefits of MEA to be realised.

## 1.2 Problem statement and problem description

Technology disruption is having a significant impact on many industries and short-term insurance is a prime target for disruption as consumers try to lower their premiums by cutting out the middle-men (Preston, 2015). The millennial and do-it-yourself generation are forcing Insurers to change the way they have traditionally done business by becoming more transparent and providing self-service capabilities for their customers. The demand is evident in the fact that insurance companies are providing mobile apps which offer quotes, claims registration and tracking, allows for information to be accessed, and even summon brokers

to their homes (Jaafari, 2015). To meet the challenges of the new consumer demand for self-service, mobility, and faster turn-around times from Insurers, it is suggested that insurance companies are going to have to invest heavily in software and hardware infrastructure which is the enabler for this demand (PWC, 2015). Insurance companies are also faced with a never-ending drive to have more information to enable better underwriting at lower costs. Technology innovation is the means by which this goal is achieved. It is not only the consumer-facing mobile apps which are being demanded by the market, but MEA also allow for better quality data collection, better data availability for mobile staff, and tools in the form of mobile apps for risk assessment and claim handling. MEA have a multitude of roles to play in improving efficiency and effectiveness of the business process which enable the insurance companies of the future. If companies are going to be investing in MEA to meet the challenges and opportunities, then there need to be mechanisms to identify these benefits as well as processes which realise the benefits for the organisation. Understanding the issues about the use and consequential benefits from that use of MEA addresses the opportunities which companies are looking for. Along with the benefits, part of the understanding is knowing which factors have an effect on the adoption by users of the MEAs provided to them. This knowledge is necessary to maximize adoption so that benefits from the MEA can be achieved. Understanding these issues is, therefore, the objective of this study.

## 1.3 Research objective

This research had two goals. It strived to develop, implement and evaluate a process which could maximise the benefits which could accrue to an organisation which utilising MEA. Part of this process involved identifying the benefits, and the corresponding risks which prevented the benefits from being realised so that they could be addressed and mitigated. The outcome from this research not only helps organisations in a practical way but also contributed to the theory of benefits management for scholarly purposes.

There have been repeated calls for over a decade by researchers and practitioners to understand the issues and factors explaining adoption, acceptance and use of mobile services (Gao, Krogstie & Siau, 2011; Lyytinen & Yoo, 2002; Shaikh & Karjaluoto, 2015; Urbaczewski et al., 2002; Wang & Li, 2012). The second goal was to identify and describe the factors which influenced the adoption of MEA. Mobility research needs to be conducted in various

industries and countries that have different mobility requirements to determine whether industry variations have an impact on the performance results (Giaglis et al., 2006; Vuolle, 2011). Industry variations can come from factors such as how mobile the workforce needs to be, whether geolocation is at all relevant in business processes, timing of information needs of, and many other differentiators.

## 1.4 Significance of this research and contribution that may be made

The creation of a business case which details the benefits to be achieved by a project as well as the risks to those benefits is a large contributing factor towards project success (Remenyi & Sherwood-Smith, 2000). Studies have also demonstrated that benefits realisation of IT projects can lead to improved organisation performance (Chih & Zwikeal, 2015). It follows then that benefits realisation from the development and use of MEA in organisations will have the same performance impact. One of the major challenges facing IT management is the justification, proving, and monitoring of these IT benefits (Coombs, 2015). Previous studies have attempted to encourage the use of formal benefits realisation approaches, for improving the outcomes of IT projects (Remenyi, White, Sherwood-Smith & White, 1997; Ward & Elvin, 1999). There is however little evidence that these academic prescriptions have translated into effective working practices (Ashurts et al., 2008).

Project management theoreticians recognise that various types of project management are required in different circumstances, varying by country, sector, and size of the organisation. It is, therefore, necessary to expand this research field to accumulate studies from different industries around the world (De Moraes et al., 2017; Turner & Ledwith, 2016).

This study's focus was on MEA which are specifically designed for smartphones and tablets. Smartphones and tablets have unique characteristics, and their differences influence the types of applications suited to these mobile devices and as such warrant their investigation (Hoos et al., 2015). Case studies are a useful way of illustrating the use of process research models (Newman & Robey, 1992). A process model provides an organising theoretical structure for case study research thereby enabling case studies to support the objectives of normal science including prediction and generalisation (Newman & Robey, 1992). This research contributes by offering a benefits management process model to realise benefits from their early identification, management and also the identification of possible risks to

their realisation. MEA benefits specific to the insurance industry have been identified, and risks to these benefits being realised were also identified in this study. Research process models need to be grounded in empirical reality, and this study serves this purpose (Newman & Robey, 1992).

A further contribution of this research is the factors which affect the adoption of MEA. For benefits to be realised, the technology needs to be used as intended by the users, therefore, understanding the factors which influence the use is important. Companies wanting to embark on the development and use of MEA can use the findings of this study to realise the benefits from their investment.

## 1.5 Definitions, Assumptions, and Limitations

This study focused on MEA which are used in the business processes related to short-term insurance. The use of two of the MEA was mandatory rather than voluntary which has different implications for adoption by users. A limitation of this research is that the MEA were used in a single case study which while offering rich and deep insights into the problem situation, could have different results when the MEA are operationalised in a different context or industry. Insurance has its unique processes where these MEA were utilised and the adoption and benefits derived for the organisation could be different in another context. The maturity of BM in organisations varies widely, and the success of the BM process prescribed in this study could have different outcomes. The adoption study was cross-sectional due to time constraints but the literature shows that adoption changes based on level of experience. Doing a longer study to examine the effects of experience on attitudes towards MEA use would be useful.

## 1.6 Research questions

Based on the need to address these mobility issues raised, the following research question was addressed in this thesis:

***How can MEA benefits be successfully realised?***

With the following sub-questions:

1. ***Which process can manage the successful realisation of MEA benefits?***
2. ***Which benefits can be realised by an organisation in the short-term insurance industry when utilizing MEA?***

3. ***What are the risks that prevent the realisation of the expected benefits of utilizing MEA?***
4. ***What are the factors which influence the adoption of MEA by individuals?***

## 1.7 Research paradigm

Pragmatism was the chosen paradigm for this study because of the practical nature of the primary question, that being the creation and testing of a process for BM in a real problem situation. A mixed method design which used both qualitative interview data for the action research component and quantitative data from a survey, to answer the adoption question, was employed for this study. Pragmatism is the chosen approach for most mixed method research (Felizer, 2010). Pragmatism in mixed method research focuses on the problem to be researched and the consequences of the research (Felizer, 2010; Tashakkori & Teddlie, 1998). As will be discussed in the research method section of this thesis, Action Research (AR) was the primary strategy used to undertake this particular study of MEA while a survey was used to understand the factors influencing the adoption of the MEA. The primary research question posed in this study was of a practical nature, where a process was implemented to help manage benefits when utilizing a MEA.

## 1.8 Format of Thesis

The remainder of this thesis will be structured as follows; A discussion of the literature setting the context of this study relative to the existing body of knowledge regarding MEA and benefits management. Following from the literature review, the method used to approach this research will be explained. Chapter 4 will explain the findings from the first MEA project. Chapter 5 and 6 will detail the action cycles performed in the study which refined the BM process and identified the benefits and risks. Chapter 7 will provide the answer to research question 1, chapter 8 will provide the answers to research questions 2, chapter 9 will answer question 3, and finally chapter 10 will answer question 4. The thesis will conclude with chapter 11 which is the summary of this study.

# 2. Literature Review

The review will first describe the literature related to the mobility concepts and then explain the conceptual design of the theory on which the study is based. This chapter will start with the justification of the method used for the literature review and then go on to the review of the literature.

## 2.1 Justification of literature review method

Literature review methods and approaches are in a state of transition (Tate, Furtmueller, Evermann & Bandara, 2015). This study did not use a systematic literature review (SLR). There is debate taking place within the IS literature over the importance of using systematic literature reviews versus other methods of literature review which are still more prevalent (Boell & Cecez-Kecmanovic, 2015). A criticism of SLR is its bias toward positivist and quantitative research and its lack of inclusion of qualitative research (Oates, Edwards & Wainwright, 2012). While Oates et al. (2012) addressed this shortcoming with their approach to SLR, this bias is still very prevalent in reviews using SLR as a method. A principle underpinning of SLR is its aim, from its use in medical literature 'to identify, extract and summarize evidence as value-free facts' (Boell & Cecez-Kecmanovic, 2015) which is in line with its realist ontology of positivism and therefore leaves no room for interpretivist research in its method (Boell & Cecez-Kecmanovic, 2015).

Another criticism of SLR is that it is inefficient (Boell & Cecez-Kecmanovic, 2015). The literature search process of SLR needs to be repeatable for other researchers. The method used for identifying literature results in very large data sets which require huge effort to analyse. This means that only abstracts are read which is not efficient. In a quantitative study looking for 'facts' in literature is more feasible than needing to understand interpretative arguments in qualitative papers. The 'facts' from these papers rely on interpretation and context and cannot be considered 'facts' as is the case in qualitative scientific papers (Boell & Cecez-Kecmanovic, 2015).

Rowe (2014) identified four genres of reviews;

1. Those describing a phenomenon without contributing to theory.
2. Those aiming to understand a particular phenomenon or problem through related concepts in prior research.

3. Those aimed at testing theory by aggregating prior empirical findings.
4. Those aimed at explaining, which bring together diverse streams of work and use various synthesis approaches and methods.

The hybrid review is also a valid method according to Pare et al. (2015) who stated that it is possible for a literature review to have more than one purpose. In their topology of literature review types, Pare et al. (2015) list nine types of review. The type best describing the method used for this study, based on their topology, is the scoping review. This type of review is used by researchers when they examine the extent, range, and nature of research in a particular area, or they attempt to determine the value of doing a full systematic review, or they identify research gaps in the literature (Pare et al., 2015). This study's review purpose, which attempted to identify the gaps in the literature in the areas of BM, benefits of using MEA, the risks to benefits realisation, and the adoption of MEA, is best described as a scoping review. While the intention of the scoping review is to be as broad and comprehensive as possible, the practical implications of time and access to resources are constraints which need to be acknowledged (Pare et al., 2015). In this study, the research included in the review was identified from an explosive snowball method. The literature included was based on whether the researcher could access the study through the available databases at his university or through Google scholar. If the research was not freely available, the researcher excluded the research. The search engines available to the researcher were Google scholar and EBSCOhost. Terms used for searches were mobile applications, mobile enterprise applications, benefits management processes, benefits management in information systems, information system and adoption, amongst many other terms. The literature for the review was collected over a four-year period and updated for relevance as the thesis progressed. There is a concern by researchers (Grant & Booth, 2009) regarding the quality of the research used in scoping reviews, however, Pare et al. (2015) remain unconvinced that quality impacts the relevance of scoping reviews.

The literature investigating the adoption of technology and the benefits to be gained from using technology is plentiful. Literature searches on these two topics go back many decades, and these two issues have been investigated since the start of Information system research. The reason for this interest is as relevant today as it was then, namely that organisations struggle with adoption of technologies and the realisation of the expected benefits from

adopting technologies and systems. MEA are yet one more new technology which promises benefits yet benefit management continues to be a complex task that few organisations have mastered (Coombs, 2015). It is for this reason that this study which examined MEA benefit management and adoption is relevant. A review of the relevant literature will now follow.

## 2.2 Mobility as a Disruptive Information Technology Innovation

Swanson (1995) defined an IT innovation as an innovation in digital and communications technology and its application. IT innovations are linked to increases and changes in computing capability that allow for radically enhanced processing, storage, connectivity, transfer, and display of information (Lyytinen & Rose, 2003). IT innovations seldom only involve a technology component, either hardware or software improvement that are new to a particular adopter (Lyytinen & Rose, 2003). According to Lyytinen and Rose (2003), they are usually accompanied by organisational innovation in the form of new cognition, meaning, work process, business process, or organisational structure.

Lyytinen and Rose (2003) distinguished between three types of IT innovations in their model in *Figure 1*.

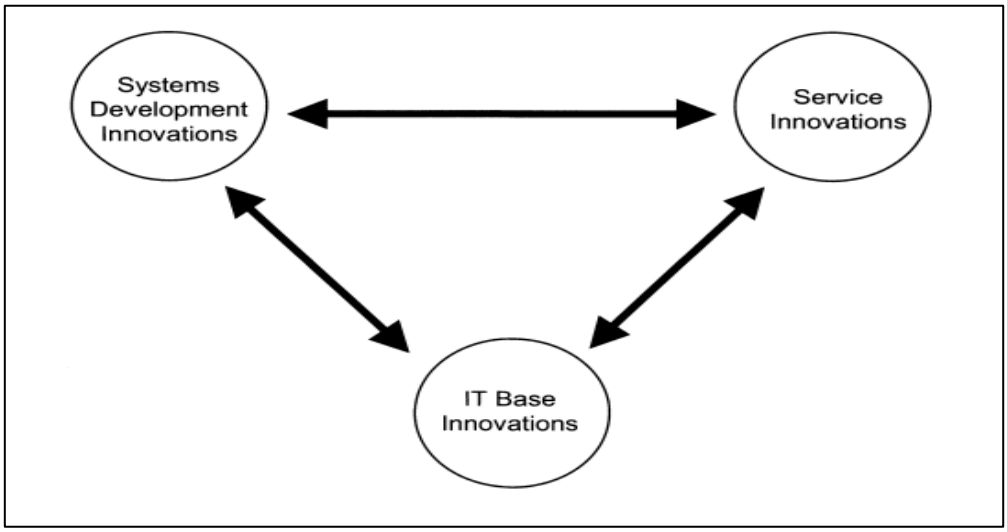


*Figure 1: The Three-Set Model of IT Innovation [Lyytinen & Rose, 2003]*

The first type is Systems development innovations which include changes such as new development tools or development teams. The second type of innovation, Service innovations, is the product of the development process namely services. These innovations are used to support the administrative core of the organisation, i.e., accounting. Either these

service innovations affect business functions or core business processes of the organisation. Service innovations usually require a change in computing capability as a precursor. In the case of MEA, this precursor was the improvement of smartphone technology as well as the improvement in wireless connectivity, which lead to the pervasive use of smartphones and mobile apps (Hasan et al., 2013). This leads to the final set of innovations as described in this model, that of base innovations which change the available computing capability. Base innovations spawn other forms of IT innovations (Friedman & Cornford, 1989; Galliers & Somogyi, 1987). Base innovations include among others improved telecommunication capability (Lyytinen & Rose, 2003). Therefore, the improvements in mobile connectivity and speed of the mobile networks can be considered a base innovation according to this model in Figure1. The sets of innovations in the model are mutually dependent because innovation in one type may spawn innovations in others. The co-dependency exists because IT innovation processes are driven by both push and pull forces (Zmud, 1982, 1984). When this model is applied to MEA, it can be understood that the improved computing capability in mobile computing devices coupled with the new wireless connectivity enhancements of 3G and other mobile networks spawned the rapid development and creation of mobile apps that together created the disruptive innovation of the Mobile Internet (Manyika et al., 2013).

## 2.3 The Disruptive capability of the Mobile Internet

A disruptive innovation is the result of linear growth in computing capability (which is also linear growth in the underlying complexity) which eventually overwhelms the current computing metaphors (Lyytinen & Rose, 2003). This results in a qualitatively new type of computing (Lyytinen & Rose, 2003). The mobile internet is defined as a combination of mobile computing devices, high-speed wireless connectivity, and applications (Manyika et al., 2013). Mobile apps are the crucial element in the success of the mobile internet as they provide new innovative capabilities and services on the phones and tablets used to access the mobile internet (Hoos et al., 2015; Manyika et al., 2013). Mobile apps make computing very different from traditional phones and computers as they provide location-based services; personalised information feeds; and constant online contact with friends, colleagues, and customers (Manyika et al., 2013). By this definition, mobile apps are a disruptive innovation in organisational computing as they completely change the way in which traditional desktop computing has been carried out.

In an organisational context, MEAs have the potential to significantly improve internal operations which can impact from sales staff to knowledge workers (Manyika et al., 2013). An example of such a productivity improvement would be for sales representatives where mobile devices are already proving their ability to increase productivity by making pricing, options, configurations, financing terms, and other relevant information immediately available (Manyika et al., 2013). It is estimated that the potential worker productivity gains from the use of MEA could be as much as $1.7 trillion annually by 2025 (Manyika et al., 2013).

## 2.4 Nomadic Consequences of the Mobile Internet

The continuous and rapid development in IT, caused by improvements in mobile and wireless communication technologies such as 3G mobile devices (Cerf, 2001; Kleinrock, 2001), as well as the miniaturisation of computing devices has resulted in new types of computing based on nomadic behaviour (Lyytinen & Yoo, 2002). Nomadicity was defined by Kleinrock (2001) as the ability of systems to support a rich set of computing and communicative capabilities and services for nomads as they move in a transparent, integrated, convenient, and adaptive manner. Lyytinen and Yoo (2002) predicted that improvements in handheld computing devices would lead to, "increasingly encompassing digitisation, miniaturisation, and integration of diverse sets of information (personal, organisational, public) and offer unprecedented possibilities to access, manipulate, and share information on the move." The ubiquitous use of mobile technology and mobile apps in use in 2015 (Borg & Skidmore, 2015) would appear to confirm their prediction.

Mobility and more particularly mobile apps are the enablers of this type of computing which enables nomadic behaviour. Traditionally computing services were localised in a stationary location. Users were required to access computing services from a physical site (Lyytinen & Yoo, 2002). Nomadicity demands that users access computing services from wherever they are needed. Organisations can, therefore, enhance business efficiency by making information available to this nomadic workforce (Leung & Antypas, 2001).

## 2.5 Differences between mobile and traditional information systems

Mobile apps and traditional applications have significant differences (Kaur & Kaur, 2015; Krogstie, 2009; Siau, Ee-Peng, & Shen, 2001). The differences have been categorised in prior research (Krogstie et al., 2004) into the following groups:

- User-orientation and personalisation
- Technological aspects
- Methodology for development and operations

User orientation and personalisation matters in mobile apps because mobile apps tend to address a wider group of users. This implies that the user-interface needs to have a high priority in the design phase as it needs to be very simple (Krogstie et al., 2004). Based on the fact that an application is constrained by the form factor within which it resides, this implies that the platform upon which it is developed determines the human-machine interaction capabilities (Pitt, Berthon, & Robson, 2011). The consequence of this reality is that mobile application design differs greatly in comparison to desktop applications. Mobile devices have restricted input as well as output capabilities due to their size limitation. Individualisation of mobile apps is important both at the individual level where features of the application such as screen layout and commands are customised to personal preferences and hardware constraints, as well as at the work level, where application functions are customised to fit the user's preferred processes (Krogstie et al., 2004). Individualisation implies that mobile information systems must adapt to personal preferences of the user and also allow the user to customise the application by changing the user-interface.

A further important difference between mobile and PC-based applications is that of privacy. Consideration needs to be given to the amount of data required in a specific context when using mobile apps. Unsolicited data and large amounts of data are not appropriate given limited bandwidth and data transfer speeds on mobile networks.

Technological aspects encompass issues such as the limited computing capability bounded by smaller processors, less memory, and less storage capacity of mobile devices. This limitation requires that performance issues be considered when designing mobile apps more so than desktop PC applications (Krogstie et al., 2004). A second technological difference between mobile apps and PC-based applications is brought about by the convergence of technologies

which are now available on mobile devices. An example would be location determination and photography capabilities in tablet devices. This convergence allows for completely new types of applications to be developed on mobile platforms. A benefit of this convergence of technologies is that mobile devices now offer more than one channel for users to access the same application which allows for greater freedom of choice in the workplace. Users can either use desktops, laptops, or tablet devices to retrieve the same information and perform the same tasks.

Methodology for development and operations refers to the fact that mobility is a disruptive technology as far as information systems development is concerned. It is not possible to transfer the traditional development models of traditional software development to mobile application development (Kaur & Kaur, 2015). There are seldom existing services or prior examples to which problem analysis efforts can be compared (Krogstie et al., 2004). Furthermore, radical changes caused by the creation of mobile information systems often result in the changing of other information systems. The disruptive change has a ripple effect on other systems and business process. Another consideration with mobile technology is the rate at which the technology changes. The design of the applications needs to consider that the technology is in constant flux and therefore the applications must be easy to change. This is more important in mobile development than has been the case in desktop application development.

MEA are distinctly different from traditional PC-based enterprise applications because of the unique features of smart devices. These differences between the application devices have been described by Pitt et al. (2011) as follows:

- *Unique to the user*: The devices are personal devices with customised features.
- *Smaller screen size*
- *Portable*: Smart devices are much smaller and lighter than traditional devices
- *Always on / Instant on:* No boot-up required for smart devices or much shorter boot time.
- *Long battery life*: Newer models of tablet devices can operate for several days before needing to be recharged allowing for greater mobility and flexibility.
- *Ease of use, including touchpad*: Tablets and smartphones do not require a mouse, keyboard or external monitor. The touch interface makes for much simpler user-input.

- *Accelerometer and gyroscope*: The use of these features in smart devices creates opportunities for motion sensing in applications that would benefit from such features.
- *GPS*: This feature adds great potential for location-based applications which were not previously available on desktops and laptops.
- *Camera:* The ability to take high-resolution photos on smart devices has enabled a wealth of new opportunities to be provided by mobile apps.

These differences change various established practices when creating business systems for the new era of business computing. The manner in which systems are designed, their functionality, their use, and their purpose are all influenced by these differences in devices.

## 2.6 Objectives of MEA

The nomological network in Figure 2 details how the proliferation of MEA has occurred as a result of a convergence of several factors. These factors are the improvement of technology in smartphones and tablets, the widespread adoption by consumers and businesses of the mobile Internet, the adoption of mobile business services, and the increasing technological ability of mobile workers to work remotely. MEA are ultimately the enabler of each of these individual components which create benefits for the organisation.

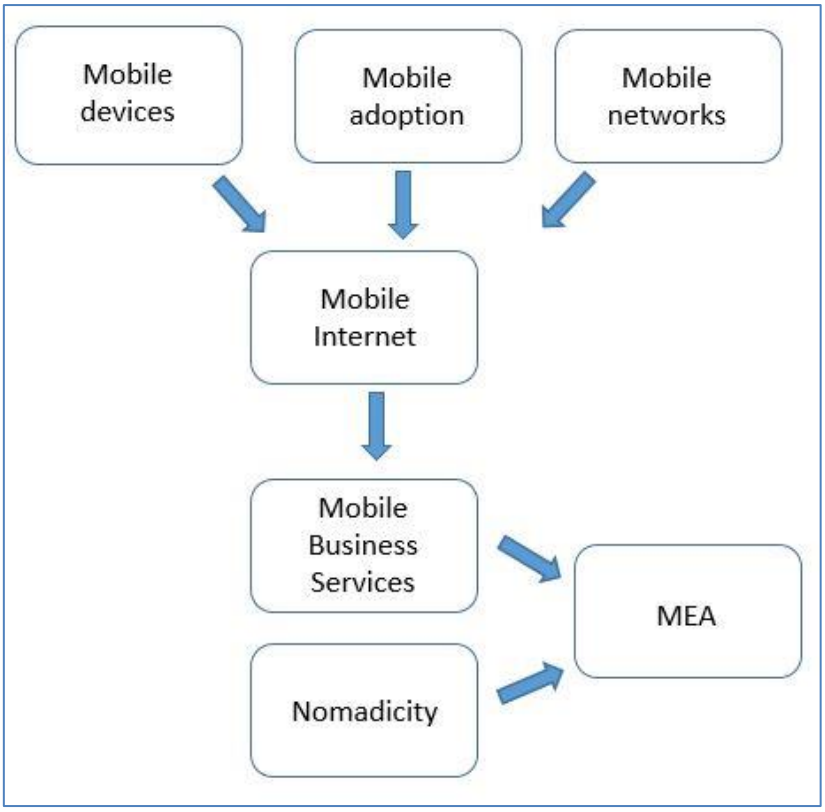


*Figure 2: Nomological network of factors influencing the growth of MEA*

The literature (Nah, Siau & Sheng, 2005) shows that the fundamental objectives of mobile apps are: effectiveness, customer satisfaction, security, cost, and employee acceptance. It is not only these objectives that organisations seek, but they also create MEA for a range of productivity and efficiency reasons (improved business process efficiency; lowered operational costs; improved decision making) (Varshney, Mallow, Jain & Ahluwailia, 2002). Furthermore, companies are also being forced into the situation by the market as well as by employees, where they are required to provide such MEA because of demand pressures (Manyika et al., 2013).

## 2.7 Research Gap

The study of organisational performance and its direct link to the successful realisation of benefits from IT projects (Chih & Zwikael, 2015; Terlizzi et al., 2017), has received much attention as an area of academic study (Hesselmann & Mohan, 2014). While it is understood that BM is important to ensure that benefits from IT projects are realised (Marnewick, 2016), BM is still poorly implemented in organisations (Terlizzi et al., 2017). The models and tools which have been produced (Doherty, 2014; Doherty et al., 2012) are not used consistently

across different industries or organisations (Espinoza, 2014). Studies show that when benefits are identified at the start of a project and managed throughout the project's life-cycle, more benefits can be realised for the organisation (Albertin & Sanchez, 2008; Marnewick, 2016). The literature still lacks empirical evidence of the value of adopting IT BM (Badewi, 2016) as well as practical examples of how BM can be implemented in IT projects (Terlizzi et al., 2017). Terlizzi et al. (2017) found evidence of the extent to which BM has been neglected in IT projects and remains immature. Project management differs around the world, and the body of knowledge requires that research expands to accumulate studies from different industries and different countries (Turner & Ledwith, 2016). There is also a need to empirically test different types of BM for different types of projects (Terlizzi et al., 2017). Terlizzi et al. (2017) studied how BM was adopted by the financial services industry in Brazil. The purpose of this study then is to empirically refine, apply and prescribe a BM model for MEA projects in the insurance industry in a South African context.

While there are a growing number of researchers investigating mobile apps (Bouwman & Van De Wijngaert, 2009; Chung, Lee & Kim, 2014; Gebauer, Shaw, Gribbins, 2010), there is still little research focusing on mobile apps in a business context (Picto, Belanger & Palma-dos-Reis, 2014; Xiao, Meredith & Gao, 2017) as the majority (Ghose & Han, 2014; Hoehle, Zhang & Venkatesh, 2015; Sivakumar & Reddy, 2015) have focused on consumer-facing mobile apps. Also, the mobile application studies are mostly from a technical perspective, and the consumer studies focus on a voluntary hedonic use rather than a goal-oriented, utilitarian use which is appropriate for a business application (Vuolle, 2011). Various studies have been conducted to understand the goals (Kim, Chan & Gupta, 2007; Lee & Park, 2008) and the perceived value of utilising mobile apps (Kaasinen, 2009). These studies are not transferable to a business context as consumer services, and enterprise services cannot be measured in the same way. This is because business expectations dictate the value analysis of corporate services and not individual goals as is the case in consumer services (Paavilainen, 2002).

Studies by Picoto, Palma-dos-Reis, and Belanger (2010) and Basole (2007) have identified the business value of mobile services and classified the benefits. The benefits derived from the use of MEA specifically in the context of financial services is lacking. Research on how to achieve these positive business performance improvements through improved BM and

benefits realisation still lacks from the literature. It is important also to understand the factors which influence the adoption of MEAs by individuals and this gap is filled by this research.

The theory from two IS domains were used in this study. Firstly, the theory from benefits management and benefits realisation and secondly, the theory around the adoption of a technology. The first lens to address question one regarding the BM process used the Cranfield process model of benefits management. The second lens was a combined evaluation model for mobile services which was used to focus on the factors influencing adoption of MEA. The conceptual design of the research theory will now be discussed in turn.

## 2.8 Managing Business Benefits

The theoretical lens used to answer question one namely, which process can manage the successful realisation of MEA benefits, was that of business benefits management. Benefits management (BM) is defined as, "the process of organising and managing such that potential benefits arising from the use of IS/IT are realised" (Willcocks, 1994). BM is an approach to support value creation from IS investments (Nielsen & Persson, 2017). The successful benefits realisation of IT projects and its link to organisational performance has been well established (Chih & Zwikael, 2015). While the BM knowledge domain has received much academic attention (Hesselmann & Kunal, 2014), the tools and models produced and used for managing benefits are limited and poorly implemented or used inconsistently across different industries (Espinoza, 2014; Terlizzi, Albertin & De Moraes, 2017). For this reason, one of the challenges of IT management is to justify, prove, and monitor the benefits that are derived from IT projects (Coombs, 2015; Smith, Dombo & Nkehli, 2008).

There are two types of project benefits, target benefits, those benefits identified before project commencement, and which the project funder expects to realise from the investment, and fortuitous benefits, the benefits which emerge during the project (Zwikael & Smyrk, 2011). Because fortuitous benefits emerge as the implemented system is used, these benefits are not covered by the benefit management process discussed in this research. The literature defines target benefits as strategic project goals that once the project is completed, will improve business performance (Zwikael, Chih & Meredith, 2018). Target benefits are identified and set during the initiation phase of a project then tracked and monitored throughout the project as well as at the end for project performance evaluation (Zwikael, Chih

& Meredith, 2018). The importance of identifying target benefits was highlighted by the PMI (2016) which showed that 74% of the organisations that identify target benefits in their business case meet their project goals compared to 48% that do not. Project benefits are often over-stated to secure project funding and approval (Peppard, Ward & Daniel, 2007). Because the project stakeholders are aware of the unrealistic benefits stated upfront, there are seldom project debriefings conducted to assess project success based on the achieved benefits (Peppard, Ward & Daniel, 2007). Additionally, if no expected benefit identification has occurred, it is not possible to assess success (Peppard, Ward & Daniel, 2007). This makes a process for benefit identification and management essential to ensure realistic project evaluations and returns on investment.

### 2.8.1 Defining a BM process

For decades IT management has been under increasing pressure to justify the growing costs of IT expenditure (Peppard, Ward & Daniel, 2007). Their challenge is not only to measure the contribution of their investments to business performance but also to ensure that the business realises the benefits from the investments (Lin & Pervan, 2003). This challenge is made more difficult by the fact that the types of IT investments and the types of benefits they can deliver, evolve. The complexity of the inter-connectivity between financial, organisational, social, procedural and technical threads makes the evaluation and realisation of the benefits difficult to assess and manage which ultimately results in organisations dealing with these issues ineffectively (Lin & Pervan, 2003). Identifying and measuring benefits is the most difficult issue in evaluating IT (Seddon, Graeser & Willcocks, 2001). Remenyi (2000) suggested four areas which have contributed to IT benefit measurement and management difficulties:

- *Benefits and identifiable performance improvements*: It is not possible to identify all possible benefits that an information system will deliver.
- *The issue of IS reach*: IS integrates corporate issues, problems, and resources. The result of combining these elements is not easy to understand upfront.
- *Tangible and Intangible Benefits*: Intangible benefits are difficult to link to corporate financial results and as such intangible benefits of IS are often ignored.

- *Benefit evolution*: Benefits are unstable. While early benefits might disappear, other unforeseen benefits might materialise over time. This makes upfront benefit identification very difficult.

Ward, Taylor, and Bond (1996) believed that to determine if the desired benefits have been realised in practice, post-implementation measurement and evaluation is needed. If no measurable effects can be identified other than the implementation of the technology, that implies that no benefits have been realised.

Research has demonstrated that structured BM methods suffer from low adoption rates (Hesselmann & Kunal, 2014). The practical aspects of BM require specific organisational capabilities (Nielsen & Persson, 2017). There is a multitude of benefit evaluation techniques suggested by researchers. The financial techniques such as net present value and return on investment are criticised for ignoring intangible benefits (Hochstrasser, 1993). There are several published methodologies for realising IS/IT investment benefits (Lin, Pervin & McDermid, 2005):

- Cranfield Process Model for Benefits Management (Ward, Taylor, and Bond, 1996)
- Active Benefit Realisation (ABR) (Remenyi, Sherwood-Smith & White, 1997)
- DMR's Benefit Realisation Model (Truax, 1997)
- Model of Benefits Identification (Changchit, Joshi & Lederer, 1998)
- The IT Benefits Measurement Process (Andresen et al., 2000)

The Cranfield benefits management process model (Figure 3) is one of the first, most used and widely cited BM models (Braun, Ahlemann & Riempp, 2009).

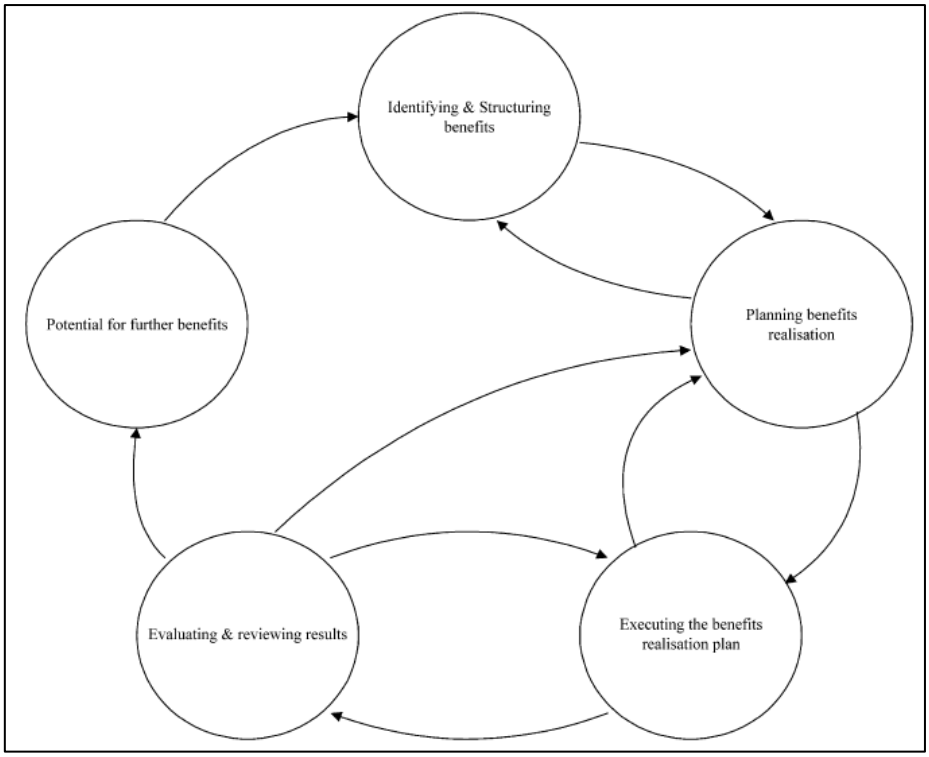


*Figure 3: Cranfield process model of benefits management [Ward, Taylor & Bond, 1996]*

It can be used as the basis for guidelines on best practice in benefits management. This process model was used as the foundation for revising the BM process which is the main contribution of this study.

### 2.8.2 Benefits realisation capability

A benefits realisation capability framework was created by Ashurst and Hodges (2010) based on the findings from their research which showed that organisations have different levels of maturity regarding BM and realisation. Their framework shows the factors which have been identified as indicating levels of maturity and expressed through how organisations measure IT project success, whether there is a broad view of change and its management, how the benefits realisation effort can be sustained in the organisation with training and development, and how benefits realisation supports the strategic alignment of IT projects (Waring, Casey & Robson, 2015). Table 1 is a summary of the Ashurst and Hodges framework as adapted by Waring et al., (2015) and shows the factors which are used to measure the level of maturity of the benefits realisation capability in the organisation.

*Table 1: Benefits realisation competency framework [Waring, Casey & Robson, 2015]*

| Factor | Level 1: basic | Level 2: improving | Level 3: enhanced | Level 4: advanced |
|---|---|---|---|---|
| Ability to measure success | Including all the relevant costs/benefits in the business case | Carrying out benefits realisation reviews | Focus on "measuring the right things" as a driver of change | Measures of the benefits realisation capability |
| Ability to take a broader view of change | IT solution delivery | Benefits realisation from business change | Designing the approach to change for each initiative | Creating a more flexible approach to governance, such as enabling local innovation |
| Ability to sustain benefits realisation | Ongoing provision of education to maintain expertise through staff turnover | Ongoing emphasis on improvement and incremental change | Designing projects with a greater emphasis on preparing for post-project learning | New approaches for knowledge work scenarios |
| Ability to manage the benefits realisation portfolio | Establishing control of the IT project portfolio | Strategic alignment of a cross-organisation portfolio of investments in change | Adapting the approach to projects based on the portfolio | Emphasising business innovation and learning |
| Ability to develop the capacity for benefits realisation | Establishing a baseline of effective IT service management and common project framework | Focus on the skills of individuals as a driver of success | Establishing a more agile approach to projects including incremental delivery | Developing leaders of benefits realisation |
| The competence of the individuals | Localised/ individual development of skills (PRINCE2, MSP) | Broad education programs - with an emphasis on benefits realisation | Moving from education to a broader emphasis on development and organisational learning | Top management engagement to address this as a strategic priority. |

## 2.9 Building a Business Case

Building a robust business case which justifies the expense of a project is a crucial component of successful projects (Maes, De Haes & Van Grembergen, 2017). A business case is a series of statements that demonstrate the economic value of an intervention, a course of action or a specific investment (Remenyi & Sherwood-Smith, 2000). A business case explains the benefits that will be derived from an investment by explaining the business drivers which will allow business managers to improve their performance of their businesses (Remenyi & Sherwood-Smith, 2000). The business case is the tool which links benefits from projects to the organisation's strategy (Marnewick, 2016). There are five steps defined by Remenyi and Sherwood-Smith (2000) for producing a business case for information systems:

1. Determine the high-level business outcomes that will be expressed as a set of opportunities for the organisation or problems that can be rectified.
2. Identify the critical success factors that will be supported or enhanced by the completed information system and investment.
3. Create a list of specific and detailed benefits, their appropriate metrics, measuring methods and responsibility points that are represented by the stakeholders.
4. Quantify the contribution made by the outcomes, which requires benefit values with outcomes where this is possible.
5. Highlight the risks associated with the project.

To build comprehensive business cases for MEA it is important to correctly identify the benefits which could be achieved by using these mobile apps. Furthermore, being aware of the potential risks which could prevent these benefits from being realised, further strengthens the legitimacy of the business case.

## 2.10 Which benefits can be realised by an organisation when utilising MEA?

The benefits of IT creating business value have been well documented and researched for many years (Hitt & Brynjolfsson, 1996; Mooney, Gurbaxani & Kraemer, 1996; Tallon, Kraemer & Gurbaxani, 2000). To understand how the benefits derived from MEAs might differ from those of previous IT systems, it is necessary to examine the unique features of the mobile

devices on which MEA operate compared to the traditional desktop computers, laptops and other devices in the organisation. The most important characteristic of MEAs is mobility which creates their most important advantage over traditional business applications. The impact of mobile technologies can be experienced on a personal or professional level with improved flexibility either in a time perspective (i.e., when the application is accessed) or from a spatial perspective (i.e. where the application is accessed) or a time and special perspective (ie. checking on the delivery time of a courier) (Balasubramanian, Peterson & Jarvenpaa, 2002). The value of mobile apps is dependent on the extent to which the application is location sensitive (e.g., Requires GPS coordinates); to the extent that it is time critical; or to the extent to which the application is controlled by the information receiver or by the provider (Balasubramanian et al., 2002). The benefits of mobile business services and mobile apps have been investigated by numerous researchers (Table 2).

| **Study** | **Research strategy** | **Organisation type (Size, Industry)** | **Country** | **Device** |
|---|---|---|---|---|
| Alahuhta, Ahola & Hakala (2005) | Multiple Case | Those using mobile application | Finland | PDA, Smartphone, Mobile Phone |
| Basole (2004); (2005a); (2005b); (2007) | Literature review | Large organisations | | Mobile phone, PDA, tablet |
| Campos, Jantunen, Baglee, Gilabert, Fumagalli, Emmanouilidis (2016) | Multiple cases (277) | Multiple Sectors | Italy | PDA |
| Chen & Nath (2004) | Multiple case (10) | Large Organisations | US | Laptop, Mobile phone, PDA, tablet |

| | | | | |
|---|---|---|---|---|
| Gebauer & Shaw (2004) | Single case | Organisation introducing the mobile app to help with electronic procurement | US | Mobile phone |
| Hoos, Groger, Kramer & Mitschag (2014) | Single case | Automotive manufacturer | Germany | Laptops. Mobile touch-screen devices |
| Markova & Aula (2007) | Single case | Taxi industry | Finland | Mobile devices |
| Nah, Siau, Sheng (2005) | Single case | Utility company | US | Blackberry wireless handheld devices |
| Picoto, Palma-dos-Reis & Belanger (2010) | Interviews (9) | Banking, telecommunications, distribution, utility | Portugal | Mobile devices |
| Rangone & Renga (2006) | Multiple Case (16) | Those using mobile application | Italy | PDA, Smartphone, Mobile Phone |
| Rangone, Renga, Catti, Mitrione & Mondini (2007) | Multiple Case (30) | Utility Companies | Italy | PDA, Smartphone, Mobile phone |
| Scornavacca & Barnes (2008) | Multiple cases | Manufacturing, Cultural and Recreational, property, transport, wholesale | New Zealand | PDA, Laptop, Smartphone |
| Stieglitz & Brockmann (2012) | Survey | Corporate (CIOs and IT managers respondents) | Germany | Smartphone s Tablets |
| Unhelkar & Murugesan (2010) | Multiple cases (3) | Mobile service provider, Consulting company, Security company | Unknown | Mobile phone, PDA, tablet |

| | | | | |
|---|---|---|---|---|
| Vuolle (2011) | Multiple case (2) | Construction and Taxi industries | Finland | Mobile devices |

*Table 2: Studies identifying the benefits of mobile apps*

The benefits of using information systems in organisations are well researched (Table 3), and their use can lead to business performance improvements. The benefits that are deemed applicable to those of MEA for this study in the insurance industry are included in the table. The benefits that were excluded from the list relate to procurement of inventory, the use of assets, and the sale of inventory that are not relevant in a short-term insurance context.

| | Hoos et al. (2014) | Heck, 2004 | Basole (2004, 2005b, 2006) | Anckar & D'Incau (2002) | Gribbens et al. (2003) | Markova & Aula (2007) | Rangone & Renga (2006) | Rangone et al. (2007) | Nah, Siau & Sheng (2005) | Kalakota, Robinson & Kalakota (2002) | Alahuhta, Ahola & Hakala (2005) | Gebauer & Shaw (2004) | Unhelkar & Murugesan (2010) | Liang & Wei (2004) | Chen & Nath (2008) | Stieglitz & Brockmann (2012) | Groger *et al.* ( 2013) | Campos *et al.* (2015) | Vuolle (2011) | Markova & Aula (2007) | Picoto et al. (2010) | Scornavacca & Barnes (2008) | Gammelgard et al. (2006) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Benefits** | | | | | | | | | | | | | | | | | | | | | | | |
| Improvement of business process efficiency (agile, adaptive,time, quality, flexibility, cost) | x | x | x | x | x | | x | x | x | | x | x | x | x | | x | | | x | x | x | x | x |
| Effectiveness | | | | | | x | | x | x | | | x | | | | | | | x | | x | x | |
| Convenience (system and data access) | | | x | | | | | | | x | | | | x | x | x | x | x | x | | x | x | |
| Increased productivity | x | | x | | | x | x | x | x | | x | | | x | x | x | | x | x | x | x | | |
| Improved Knowledge sharing and communication flow | | | x | | | x | | x | x | | | | | | | x | | | x | x | x | x | |
| Removal of unneccessary tasks for business processes | | | | | | x | | x | x | | | | | | | | | | | | | x | |
| Data accuracy | | | x | | | | x | x | | | | | | | | | x | | x | | | x | |
| Workforce Management | | | | | | | | x | | | | | | | | | | | | | | | |
| New work practices | | | | | | | | | | | | | | | | | | | x | | | x | |
| Reduced process lead time | | | | | | | x | | | | | | | x | | x | | x | | | x | x | |
| Improved customer service | | | x | | | | x | | x | | | | x | x | x | | | | x | | x | | |
| Improved information | | | | | | | | | x | | | x | | | | | | | | | | | |
| Organization Control | | | x | | | | | | | | | | | | x | x | x | x | | | | x | |
| Competitive advantage | | | | | | | | | | | | | | | | | | | | | | | x |
| Profitability improvements | | | | | | | | | | | | | | | | | | | | | | | x |
| Revenue generation | | | | | | | | | | | | | | | | | | | | | | | x |
| Improved employee satisfaction | | | | | | | | x | x | | | | | | | | | | x | x | x | | |

*Table 3: Benefits to mobile business*

An additional type of benefit which needs to be considered is that of Intangible benefits which have been demonstrated to have a positive impact on the productivity of the organisation but do not appear in the conventional balance sheets. It was found by Vuolle (2011) that intangible factors may account for the majority of the benefits resulting from investing in mobile business services. While it is true that companies mainly deploy mobile services for

cost reduction and productivity improvements (Alahuhta, Ahola & Hakala, 2005), if these traditional metrics are the only measures used to determine success, their deployment could erroneously be viewed as failures (Vuolle, 2011). ROI is a difficult measurement to use when determining the success of MEA as the change in business process which they influence are often indirect and lead to intangible benefits, e.g., Improved customer service (Alahuhta et al., 2005). While it may be argued that calculations do exist which capture a multitude of measures showing success of IT investments, they may not capture the entire value of the investment as they do not take into account intangible factors such as quality, timeliness, flexibility, user satisfaction, and security (Duyshart, Walker, Mohamed, & Hampson, 2003). It is, therefore, evident that to measure the true value of MEA, it is necessary to identify the total benefits and impacts on business performance. This implies that both tangible, as well as intangible benefits created by MEA, should be estimated. The inclusion of intangible benefits provides a more accurate view of the returns on the investment in building and deploying MEA in the organisation (Murphy & Simon, 2002). Management needs to attach a value to the organisational and strategic benefits produced by intangible benefits of using MEA when justifying their capital expenditure (Rangone et al., 2007).

The benefits included in the initial list of benefits used in this study were those who have been found in other studies to infer business performance improvements on organisations both internally using cost savings; improved processes; cost reductions; revenue generation; improved communication and profitability improvements and externally using competitive advantage. Approaches to establishing benefits accruing to individuals and organisations are different. For individuals, the user's appreciation of the system is measured, while at the organisational level, an improvement is required to the initial situation that existed before the new IS (Goyette & Cassivi, 2017). Optimal use of an IS is possible without there being a significant contribution at the organisation level (Goyette & Cassivi, 2017).

These benefits were found by examining prior research relating to organisational performance and the factors that influence benefits and business performance. The benefits listed in Table 5 such as revenue generation, productivity enhancements, profitability improvements, improved information, and improved communication (Devaraj & Kohil, 2003; Gammelgard, Ekstedt & Gustafsson, 2006; Hitt & Brynjolfsson, 1996; Kauffman & Kriebel,

1988) were included in the organisational context, which have an impact on business performance.

## 2.11 Risks to realising MEA Benefits

Risk has been defined as the measure of the degree of possible variation in the outcome or benefits of the project (Teltumbde, 2000). If risks which could prevent benefits from being realised are not recognised and dealt with, then there is a low probability of value being derived from deploying the information system or technology in the organisation. One of the challenges which projects face is that there are seldom validated lists which project managers can use to identify the nature and types of risks typically faced in software projects (Schmidt et al., 2001). The problem with non-context specific lists of published risks is that they might be biased by specific cultural ways of interpreting management perception and its propensity to handle and manage risky situations (Schmidt et al., 2001). The lists of risk factors which do exist in the literature were at one time predominantly created from an American perspective (Schmidt et al., 2001). The challenges found in less developed countries such as skills shortages and technology readiness are less of an issue in developed countries where these studies take place and therefore can create other risks. The literature identifies some risks limiting the realisation of mobile benefits and these are listed in Table 4.

*Table 4: Risks to benefits realisation from literature*

| | Basole (2004, 2005, 2007) | Rangone et al. (2007) | Nah, Siau & Sheng (2005) | Alahuhta, Ahola & Hakala (2005) | Unhelkar & Murugesan (2010) | Chen & Nath (2008) | Stieglitz & Brockmann (2012) | Groger *et al.* ( 2013) | Scornavacca & Barnes (2008) |
|---|---|---|---|---|---|---|---|---|---|
| **Risks** | | | | | | | | | |
| Lack of understanding of mobile devices | | x | x | | | | | | x |
| Employee resistance | x | x | x | x | | | | | |
| Technical Challenges | x | | | x | | | x | | |
| Security Concerns | | | | | x | x | | x | |
| Usability | | | | | | | x | | |
| Performance | | | | | | | x | | |
| Strategic barriers | x | | | | | | | | |
| Organizational culture | x | | | | | | | | |
| Mobile readiness | x | | | | | | | | |

For this study, these risks served as the starting point for the inductive investigation of risks which could impede the benefits realisation from the use of MEA within the business processes of the case organisation. The dominant risk appeared to be user resistance hence user adoption needs to be understood in order to mitigate this impediment to benefits realisation of the MEA.

## 2.12 Critique of TAM

While each of the traditional models in the combined model which will now be discussed has their strengths, the main criticism is that in the case of TAM and TTF, they have a technology focus. TAM is criticised for not adequately unpacking what system use entails (Straub & Burton-Jones, 2007). The criticism is that the system use construct has not been investigated sufficiently to understand its implications for user adoption (Straub & Burton-Jones, 2007). The original list of factors influencing technology usage intention in TAM only accounts for 50% of the variance in intention to use (Legris, Ingham & Collerette, 2003). Therefore, combining attitude-based constructs allows for a richer understanding of factors impacting on adoption. TAM is also criticised for being too abstract and not having practical application (Benbasat & Barki, 2007). The criticism is that the 'acceptance' construct is TAM has never been sufficiently delineated (Straub & Burton-Jones, 2007). Another criticism of TAM is that it suffers from common methods variance where users self-rate their perceptions of how useful and easy it is to use a system (Straub & Burton-Jones, 2007). They are then asked to rate their level of usage. This creates a potential bias in the results which impacts the correlations between the constructs (Straub & Burton-Jones, 2007). This claim has caused some debate in the IS literature between those that claim that the TAM relationships are known "almost to the point of certainty" (Benbasat & Barki, 2007) and those claiming that there is a flaw in the methods of verifying the relationships in empirical TAM studies (Malhotra, Sung & Patil, 2006).

## 2.13 Model of Adoption of MEA by Individuals

IT has no inherent value (Peppard, Ward & Daniel, 2007). The value of technology does not exist because the technology is possessed by the organisation, it results from the benefits derived from the effective use of the technology (Peppard, Ward & Daniel, 2007). It is for this

reason that it is important that users adopt and use a MEA so that the anticipated benefits can be realised.

The model which was contextualised to understand adoption in this study in Figure 4 was originally created by Vuolle and Kapyla (2010). They assessed the IS theories used in a mobile work context and created a model from these theories specifically for mobility. The theories that they looked at were used in mobile studies, which had examined adoption, use, and impact of mobility. The most popular theories used were Technology Acceptance Model (TAM) and Task-technology Fit (TTF) in the adoption and use of mobility context, and the Information System Success Model and Socio-Technical Theory for impact studies.

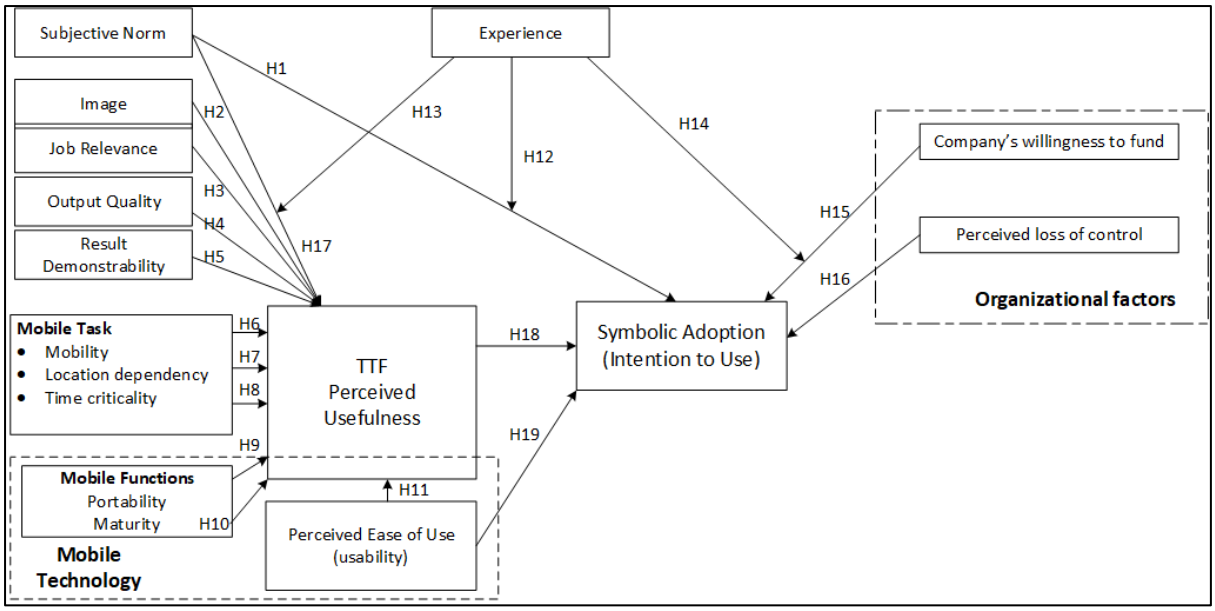


*Figure 4:Mobility model with adoption constructs*

These four models are commonly used for examining the adoption, use, and impacts of IT. The model created by Vuolle and Kapyla was used specifically to examine intention to use and impact on business performance mainly from an employee perspective, therefore, it was modified to be more suitable for this study. These changes that were made will be explained.

Intention to use from TAM was replaced in the model with symbolic adoption. Symbolic adoption is defined as "a peak motivational state reflective of a user's mental evaluation of the technology and its use as a worthwhile concept" (Karahanna & Agarwal, 2006). Symbolic adoption has been shown to be a key antecedent of IS use that is innovative in nature (Wang & Hsieh, 2006). It is a motivator for extra-role behaviour (Karahanna & Agarwal, 2006).

Because the MEAs in this study were mandatory use apps, Symbolic adoption is more appropriate as symbolic adoption has been used to explain adoption in mandatory contexts as opposed to voluntary contexts (Wang & Hsieh, 2006). As already mentioned, an enhanced TAM namely TAM2 saw the addition of the Subjective Norm as a construct, which in this study was more appropriate. Subjective norm was added to this model as another type of predictor of intent when considering mandatory system use.

Other constructs from TAM2 were also added to the model. System use has been replaced in this study by symbolic adoption. A criticism of TAM is that it does not include social factors which influence an individual's attitude. TAM2, therefore, overcomes this defect by incorporating additional theoretical constructs spanning social influence processes (subjective norm and image) as well as cognitive instrumental processes (job relevance, output quality, resultant demonstrability, and perceived ease of use). Social influence and cognitive instrumental processes significantly influence user acceptance of a system (Venkatesh & Davis, 2000). The concepts of perceived usefulness and perceived ease of use are of primary relevance in this model as they directly influence Symbolic adoption (intention to use) the technology.

MEA are often mandatory where the users are compelled to use them to perform their job functions. Voluntariness is therefore not a relevant construct in this situation. The IS success model broadens IT impacts to the organisational level and the Socio-technical perspective, and it additionally adds people and structures to the assessment of IT impact. The weakness of the socio-technical perspective, however, is that while it broadens the evaluation of IS to a more multi-dimensional perspective, it lacks an economic focus and linkage to business performance improvements (Vuolle & Kapyla, 2010). Additions were made in the combined model to allow for the unique features of mobility to be incorporated. Task-related extensions include mobility, location dependency, and time criticality. Additions were also made to technology-related aspects including maturity, usability, and portability as well as functions of mobile work support. The organisational context was emphasised by adding mandatory use (perceived loss of control) and the company's willingness to pay.

Table 5 lists the constructs used in this model as well as the sources of these constructs from prior studies.

| Construct | Researchers |
|---|---|
| Subjective Norm | Barki & Hartwick (2001); Lee (2016) |
| Image | Kelman (1958); Pfeffer (1981) |
| Job relevance | Kim (2008) |
| Output quality | Davis, Bagozzi & Warshaw (1992) |
| Result demonstrability | Moore & Benbassat (1991) |
| Experience | Kim (2008); Kim *et al* (2009); Lee *et al*. (2005) |
| Mobility | Yuan *et al*. (2010); Gebauer (2008) |
| Location dependency | Yuan *et al*. (2010); Junglas & Watson (2003) |
| Time criticality | Gebauer (2008) |
| Portability | Chatterjee *et al*. (2009); Gebauer & Shaw (2004); Gebauer (2008) |
| Maturity | Gebauer (2008); Kakihara & Sorensen (2001) |
| Perceived usefulness | Venkatesh & Davis (2000); Gardner & Amoroso (2004) |
| Perceived ease of use | Venkatesh & Davis (2000); Rouibah (2009) |
| Symbolic adoption | Wang & Hsieh (2006); Seymour, Makanya & Berrange (2007) |
| Company's willingness to fund | Kim (2008) |
| Perceived loss of control | Lee & Park (2008); Spector (1986) |

*Table 5: Model constructs and their sources*

These constructs will now be discussed in further detail.

### 2.13.1 Symbolic Adoption

Symbolic adoption has replaced usage, and user satisfaction from the original model as prior research (Karahanna & Agarwal, 2006; Seymour et al., 2007) has deemed it more suitable for mandated systems. Symbolic adoption is described as a user's 'mental acceptance' of a new system (Nah, Tan & Teh, 2004). Users in a mandatory setting undergo symbolic adoption

before actual system acceptance happens and these users will manifest differences in symbolic adoption which can then be used to investigate and evaluate user adoption of MEA.

### 2.13.2 Perceived Usefulness

Lee (2016) defines perceived usefulness as, "the user's subjective view of the probability of increasing one's work performance when employing a specified information system as it exists inside an organisation." Perceived usefulness refers to the adopter's subjective probability that applying the new technology will be beneficial to the individual who will realise a perceived utility from it (Rouibah, 2009). Users need to perceive that the system will be useful or else they will not attempt to use it no matter how easy or difficult it is to use (Gardner & Amoroso, 2004). According to TAM, attitudes towards usage are influenced by external variables outside of the system. This attitude may affect system use by influencing perceived usefulness or perceived ease of use (Lee, 2016). The factor most important in information system success measurement is not system use but that net benefits that are derived from its use (Seddon, 1997). Seddon (1997) suggested that perceived usefulness is a better proxy for measuring net benefits than actual system usage. He proposed that even in the case of mandatory use, perceived usefulness is a better proxy for net benefits than system use (Lee & Park, 2008). There is a strong link between information technology utilisation and organisational performance (Delone & McLean, 1992). The hypothesis tested was:

**H18: Perceived usefulness positively influences Symbolic adoption.**

### 2.13.3 Subjective Norm

Subjective norm explains the social influences which determine technology use. Subjective norm is defined as "a person's perception that most people who are important to him think he should or shouldn't perform the behaviour in question" (Fishbein & Ajzen, 1975). Davis (1989) excluded this variable from TAM because he felt that it had an insignificant impact. However, Barki and Hartwick (2001) found that in the case of mandatory systems, the impact was important on intention to use (Symbolic adoption in this model) (Lee, 2016). Subjective norm only influences intention for mandatory use, not voluntary use. This causal mechanism is called compliance (Venkatesh & Davis, 2000). The compliance effect of subjective norm comes into play whenever a person perceives that a social actor wants him to perform a specific behaviour, and the actor can punish or reward the behaviour or non-behaviour (Venkatesh & Davis, 2000). TAM2 theorises that in a computer system context, the

compliance effect of subjective norm on intention to use (Symbolic adoption), is greater than the effect of perceived ease of use and perceived usefulness, and will occur in mandatory, but not voluntary, system usage scenarios (Venkatesh & Davis, 2000).

This led to the following hypotheses:

**H1: Subjective norm has a positive influence on Symbolic adoption**

**H17: Subjective norm has a positive influence on Perceived usefulness**

### 2.13.4 Image

Image is included in the model as individuals respond to social normative influence to maintain a favourable image within a reference group (Kelman, 1958). TAM2 theorises that subjective norm will positively influence image because if the reference group believes that an individual should use a system, then by using the system the individual's image will be elevated (Pfeffer, 1982). The literature suggests that by increasing one's image amongst a reference group, this creates power and influence resulting from elevated status and therefore increases productivity. Individuals, therefore, perceive that using a system leads to improvements in their job performance (perceived usefulness) which is an indirect result of image enhancement, over and above any performance benefits directly attributable to system use (Vankatesh & Davis, 2000). This relationship between subjective norm and image and the resultant effect on perceived usefulness is captured in TAM2. This study did not include the relationship between subjective norm and image as it is well established in the literature. The test for image influencing perceived usefulness was considered to be more important and therefore lead to the hypothesis:

**H2: Image has a positive influence on Perceived usefulness**

### 2.13.5 Job relevance, Output quality, Result demonstrability

Job relevance, output quality, result demonstrability, and perceived ease of use are all instrumental determinants of perceived usefulness. Venkatesh and Davis (2000) argued that people form perceived usefulness judgments by comparing what a system can do against what they need to get their job done. Job relevance is an individual's perception regarding the degree to which the target system applies to their job. Output quality is a further consideration which individuals use when deciding on perceived usefulness. Over and above the job relevance of a system to the job requirements, the output quality from that system is a deciding factor when deciding on system usage (Davis, Bagozzi & Warshaw, 1992).

Moore and Benbasat (1991) defined result demonstrability as "the tangibility of the results of using the innovation." If users cannot attribute gains in their job performance to use of a system, adoption will be low and perceived usefulness will be affected negatively. The importance of this construct in TAM2 is that if a system produces effective job results by a user but those results are produced obscurely, users are unlikely to understand how useful the system is (Venkatesh & Davis, 2000). This strong correlation between usage intention and result demonstrability was found by Agarwal and Prasad (1997).

This then leads to the following hypotheses:

**H3: Output quality has a positive influence on Perceived usefulness**

**H4: Job relevance of a MEA has a positive influence on Perceived usefulness**

**H5: Result demonstrability has a positive influence on Perceived usefulness**

### 2.13.6 Experience

Experience has been shown to explain differences in individuals when adopting technology (Kim et al., 2009). To examine a user's belief in adopting a MEA, it is important to consider their prior experience. An increase in system experience has been shown to have a moderating effect on subjective norm's influence on intention (symbolic adoption). Kim (2008) also found that prior experience had a significant moderating effect between a company's willingness to fund and intention to use. The research shows that subjective norm has a significant effect on intention before system development. However, the effect becomes insignificant three months after system implementation (Hartwick & Barki, 1994). The reason given for this behaviour is that before a system is implemented, the individual must rely on the opinions of the reference group or influencer as the basis for their intention. After system usage, the individual can draw from their own experience and the normative influence decreases. A relevant finding of Agarwal and Prasad (1997) is that mandating the use of a system can increase initial system use which is useful for initial inertia to adoption. However, such pressure erodes over time. TAM2 theorises that subjective norm will be a strong influencing factor on intention to use before implementation and during the early stages of use, however, this influence will deteriorate as the individual gains personal experience with the system and can rely on their first-hand knowledge.

The hypotheses that were tested for the moderating effect were as follows:

**H12: There is a moderating effect by Experience on Subjective norm and Symbolic adoption**

**H13: There is a moderating effect by Experience on Subjective norm and Perceived usefulness**

**H14: There is a moderating effect by Experience on Company's willingness to Fund and Symbolic adoption**

### 2.13.7 Mobility

There are various dimensions to mobility over and above the obvious dimension of spacial mobility (Kakihara & Sorensen, 2001). Mobility also has to do with interaction among people. It needs to be thought of in terms of spacial, temporal, and contextual aspects of mobility in human interaction (Kakihara & Sorensen, 2001). Gebauer (2008) found the concept of mobility to be complex and did little to explain task fit or any other variable in her study. Mobility is not necessarily associated with geographical location and long-distance movement but is more generalised with the ability to 'roam free' and still be connected (Gebauer, 2008). Mobility is associated with independence and flexibility that users gain to a physical location and the ability to change location frequently (Gebauer, 2008). This leads to the following hypothesis;

**H6: Mobility of the MEA has a positive influence on Perceived usefulness**

### 2.13.8 Location dependence

Location-dependency describes the ability to locate a mobile user and provide location-specific information. This feature allows for the provision of specific services based on the geographic location of the individual. The services may include information about the geographic location (e.g., for navigational purposes) or location about others (e.g., for finder services that let users locate, clients, businesses, or landmarks) (Junglas & Watson, 2003). Gebauer (2008) found that location dependence was a strong influencing factor for mobile users when evaluating new technology. The hypothesis which was tested was:

**H7: Location dependency in a MEA has a positive influence on Perceived usefulness.**

### 2.13.9 Time criticality

Time-criticality has been used to capture the temporal nature of mobile tasks (Yuan et al., 2010). It refers to the importance of time in task performance and has two dimensions, time flexibility and urgency (Yuan et al., 2010). Flexibility defines to what extent the mobile task must be performed on time, while urgency defines the importance with which a task must be performed promptly. This led to the hypothesis:

**H8: Time criticality positively influences Perceived usefulness.**

### 2.13.10 Portability

Portability has been found to have a significant influencing effect on the perception of a technology (Gebauer, 2008). Users expectation about the portability of a device influences their evaluation of a technology. Portability was found to be important regarding battery life, weight, and size of the device.

**H9: Portability of a MEA positively influences Perceived usefulness.**

### 2.13.11 Maturity of the MEA

Gebauer (2008) found that the maturity of a technology has a significant impact on the use of that technology. Only once users perceive a technology to be mature will they be willing to try it much less use it, irrespective of whether it is a good fit to the task for which they need to use the technology. This led to the following hypothesis:

**H10: Maturity of the MEA positively influences Perceived usefulness.**

### 2.13.12 Perceived ease of use

Perceived ease of use is a direct determinant of perceived usefulness (Venkatesh & Davis, 2000). It is the degree to which the adopter expects the new technology to be free of effort regarding its transfer and utilisation (Rouibah, 2009). This implies that the easier a system is to use, the more one can increase job performance by using it. This correlation between ease of use and intention to use has been well established with empirical evidence over several decades. Research shows that ease of use is less important than perceived usefulness because no matter how difficult a system is to use, the difficulty can be overcome if it is perceived to be useful (Gardner & Amoroso, 2004). The hypotheses tested were:

**H11: Perceived ease of use of the MEA has a positive influence on Perceived usefulness.**

**H19: Perceived ease of use positively influences Symbolic adoption.**

### 2.13.13 Perceived loss of control

In order to have satisfactory interactions with others, it is essential to have a feeling of control (Schutz, 1966). Control is a human driving force, and it is defined as the need to demonstrate one's competence, superiority, and mastery over the environment (White, 1959). Lee and Park (2008) examined the perceived loss of control concept to understanding TAM in a mandatory environment. Perceived loss of control has been examined because it predicts aspects of motivational, cognitive, and emotional functioning (Skinner, Chapman & Baltes,

1988). User satisfaction is a key success indicator of mandatory technology acceptance. Prior research shows that perceived control has a positive impact on satisfaction (Lee & Park, 2008). Various studies (Spector, 1986; Tetrick & LaRocco, 1987) have shown that perceived control positively affects job satisfaction, organisational commitment, motivation, and performance. Workers are more motivated when they have a sense of control over their work environment. Lee and Park (2008) found that perceived loss of control has a negative effect on user satisfaction. The implication of this finding is that perceived loss of control plays a critical role in determining the success of information systems and organisational performance in the context of mandatory technology acceptance (Lee & Park, 2008). In a mandatory context, it follows that users are inclined to feel a loss of control. The hypothesis tested was:

**H16: Perceived loss of control negatively influences Symbolic adoption.**

### 2.13.14 Company's willingness to fund

Without funding, it is impossible for individuals, employees, or organisations to adopt and use technologies (Kim, 2008). The availability of funding changes peoples' attitudes and behaviour toward technology adoption. A lack of funding retards the success of IT adoption (Kim, 2008). Kim found that the company's willingness to fund had a significant impact on the user's intention to use a mobile wireless technology. This is relevant in the case of MEA when assessors and brokers are compelled to use a MEA in a business process.

Costs of a technology are always a primary factor in its adoption (Kim, 2008). Cost savings in respect of an organisation are the savings achieved from efficiency gains in business processes from using MEA. From an individual perspective, the cost savings come from cost-effective communication and information exchange (Kim, 2008). Cost savings and the ability of mobility to save time creates a relative advantage for organisations (Rogers, 1995). The hypothesis tested for this construct was:

**H15: Company's willingness to fund has a positive influence on Symbolic adoption.**

In summary, the constructs added from TAM2 encompass social influence processes (subjective norm, voluntariness, and image) and cognitive instrumental processes (job relevance, output quality, result demonstrability and perceived ease of use) as determinants of perceived usefulness and usage intentions (Symbolic adoption). The main differentiating feature of this model and the traditional models is that the combined model illustrates the success factors of mobile services more comprehensively, linking usability of the service to

organisational productivity and the use of the mobile service to a wider organisational context (Vuolle & Kapyla, 2010).

### 2.13.15 Adoption Model and Hypotheses

Figure 5 represents the constructs with the associated hypotheses which were tested for their influence on adoption of MEA in this study. Table 6 summarises the hypotheses that were derived from the model.

| | |
|---|---|
| H1 | Subjective norm has a positive influence on Symbolic adoption |
| H2 | Image has a positive influence on Perceived usefulness |
| H3 | Job relevance has a positive influence on Perceived usefulness |
| H4 | Output quality of a MEA has a positive influence on Perceived usefulness |
| H5 | Result demonstrability has a positive influence on Perceived usefulness |
| H6 | Mobility of the MEA has a positive influence on Perceived usefulness |
| H7 | Location dependency in a MEA has a positive influence on Perceived usefulness |
| H8 | Time criticality positively influences Perceived usefulness |
| H9 | Portability of a MEA positively influences Perceived usefulness |
| H10 | Maturity of the technology positively influences Perceived usefulness |
| H11 | Perceived ease of use of the MEA has a positive influence on Perceived usefulness |
| H12 | There is a moderating effect by Experience on Subjective norm and Symbolic adoption |
| H13 | There is a moderating effect by Experience on Subjective norm and Perceived usefulness |
| H14 | There is a moderating effect by Experience on Company's willingness to Fund and Symbolic adoption |
| H15 | Company's willingness to fund has a positive influence on Symbolic adoption |
| H16 | Perceived loss of control negatively influences Symbolic adoption |
| H17 | Subjective norm positively influences Perceived usefulness |
| H18 | Perceived usefulness positively influences Symbolic adoption |
| H19 | Perceived ease of use positively influences Symbolic adoption |

*Table 6: List of hypotheses*

This model was used to answer question four in this thesis namely what are the factors which influence the adoption of MEA? It is important to address adoption because adoption has an impact on business performance through productivity improvements which are the means through which business processes are improved by utilising MEA (Hoos et al., 2014; Giaglis, Rangone & Renga, 2006).

## 2.14 Summary

The theoretical basis of the study was supported by the literature from two areas; IS success evaluation in a mobile context, and benefits management research. The research shows that organisations fail to realise the intended benefits from IT investments (Coombs, 2015).

Benefits realisation is a typical example of the often-cited gap between academia and practice (Coombs, 2015). Due to this gap, there is a need for contributions that present insights into how an explicit benefits realisation process could be incorporated into the actual routines of systems development and implementation (Ashurst et al., 2008; Hesselmann & Kunal, 2014; Lin, Pervan & McDermaid, 2005). Terlizzi et al. (2017) investigated the literature from conferences and journal articles since 1981 and found evidence of the extent to which BM within IT projects remains neglected and immature. Ward and Peppard (2002) argued that while pre-investment appraisal and post-implementation review are important, they are not sufficient to ensure that maximum benefits from IT investments are delivered. This implies that there is a need for a BM process throughout the life of the project and possibly beyond the implementation stage. Different projects require different types of project management based on the particular circumstances, the country, the sector, and the size of the organisation (Terlizzi et al., 2017). Terlizzi et al. (2017) are of the view that this variation requires research from different industries around the world. This makes the need for this present study which designed a BM process for MEA in the South African insurance industry necessary and relevant.

MEAs are becoming increasingly pervasive in the organisational IT landscape, and the benefits which are expected to be gained from using these particular applications need to be understood as well as managed. Well defined project benefits help ensure that proposed projects contribute to organisational strategic goals. However, the literature and practice both recognise that project benefits are often poorly defined (Lin and Pervan, 2003; Zwikael et al., 2018). This has led researchers to call for research on identifying effective and accurate benefits (Won & Lee, 2016). Industry variations also affect the benefits which can be expected from the use of mobile apps (Vuolle, 2011), therefore understanding how MEA can benefit the insurance industry adds to the body of knowledge in this area.

Furthermore, Marchand and Peppard (2008) argued that it is not the introduction of the new technology itself that delivers benefits but how that technology changes the way in which the organisation does business. It is then important to understand which benefits can be realised from the use of MEA in the insurance industry so that it can be understood how these benefits might ultimately improve business performance in this specific context.

The traditional IT appraisal techniques are based on financial measures such as return on investment, internal rate of return, and net present value (Lin & Pervan, 2003). The problem with this approach is that the assumption is made that the cost of an investment is directly related to the benefits. The reality is that a gap exists between the costs being incurred and the realisation of the expected benefits (Coombs, 2015). Numerous risks to benefits realisation can influence the delivery of expected benefits such as employee resistance to business process change, turnover of key stakeholders, or changes in power relationships (Love, Irani, Standing, Lin & Burn, 2005). The traditional adoption models already address usage intention from a benefits perspective however to achieve higher levels of success, the risks to adoption also need to be understood (Gilbert, Balestrini & Littleboy, 2004). It, therefore, becomes important to understand not only the benefits that can be realised from the use of MEA but also the risks to these benefits being realised to the organisation so that they can be mitigated.

Few studies have focused on mandatory mobile apps which are significantly different to consumer-facing apps in that the adoption of these apps is influenced by different factors. Researchers and practitioners want to understand the issues about the adoption, acceptance, and use of mobile services (Shaikh & Karjaluoto, 2015; Wang & Li, 2012). This gap in the literature creates a need for additional research to understand the factors influencing the adoption when deploying mandatory MEA.

Based on the gaps in the literature described about managing the identified benefits from MEA use in organisations and the gaps in understanding the factors influencing their use, this research contributes to the body of knowledge.

# 3. Research Method

This chapter will discuss the method followed by the researcher when conducting this study. The topics covered in this section will include the research purpose, the research approach which was followed, the research strategy, as well as the choices, time horizon, and technique used to conduct the study.

## 3.1 Philosophy

Goldkuhl (2008) refers to three IS research paradigms which were identified by Orlikowski & Baroudi (1990), these being Positivist, Interpretive and Critical approaches. Positivism and Interpretivism seem to be the main competing research paradigms in IS research (Goldkuhl, 2008). Pragmatism was suggested by Wicks & Freeman (1998) as an alternative to these two competing paradigms. The philosophical stance taken in this research to answer the questions was that of Pragmatism. Pragmatism is the suggested philosophy of most AR (Gordon, 2016). According to Baskerville and Myers (2004), Pragmatism provides a mechanism to help explain why things either do or do not work by asking the correct questions and getting empirical answers to the questions. Pragmatism is concerned with action and change and the interplay between knowledge and action (Goldkuhl, 2012).

For this reason, Pragmatism is an appropriate basis for research approaches with the intended goal of intervening in the world and not merely observing (Goldkuhl, 2012). This would be the case when the intervention is organisational change (as in the case of AR) (Goldkuhl, 2012). Goldkuhl (2004) understands Pragmatism as having an interest in actions in their practice context. Pragmatism's focus on human action gives it an orientation towards a prospective, not yet realised reality, based on action or an intervention (Goldkuhl, 2004). Pragmatism was formulated as a philosophic alternative to abstract and rationalistic science by Peirce (1931), James (1907), Dewey (1931) and Mead (1938). According to Dewey (1931), action is the way to change existence. The Pragmatist philosophical stance can be understood as one that acknowledges the mutual permeation of knowledge and action (Goldkuhl, 2004). The Pragmatist is interested in change and action. The research goal is to produce knowledge which can contribute to the improvement of IS practices (Goldkuhl, 2004). Pragmatism is recognised as a viable alternative to positivism and anti-positivism (Goldkuhl, 2004). It objects to relativistic and idealistic positions. For a pragmatic IS researcher, an Interpretive stance is

unavoidable however they are not only concerned with making observations, but their interest also lies in actions and practises (Goldkuhl, 2004). The Pragmatist researcher believes that there is an over-emphasis on subjective interpretations and therefore it is necessary that practical meanings of conceptions be made. The knowledge character within Pragmatism differs from the explanation which is typical of Positivism and understanding, which is the key form of Interpretivism (Goldkuhl, 2012). The knowledge forms of Pragmatism are prescriptive (giving guidelines), normative (exhibiting values), and prospective (suggesting possibilities) (Goldkuhl, 2012). Pragmatism also does not imply any anticipation of research questions and purposes. Pragmatism differs from Relativism in the degree of practical meaning given to a concept. Goldkuhl (2004) suggests that it is not enough that interpretations make sense, they must make sense practically. Pragmatism demands that in order to understand the social world (i.e. the development of an information system); it is necessary to understand the actions performed by people (Goldkuhl, 2004). Pragmatist research in the Information Systems' domain is constructed on the following assumptions (Agerfalk, Aakhus & Lind, 2008):

- Human life is a life of activity.
- Humans do things that affect changes in their environment and/or within themselves.
- Doing permeates thinking, conceptualisations and language use.
- Human consciousness is a practical one that is in constant interplay with Interpretive, investigative and evaluative actions.
- Experience from previous actions and participation in social contexts for practical consciousness.
- IT and information systems are fundamentally symbolic language systems.
- The true value of IT and IS lies in their potential to support human communication and collaboration central to human activity.

Goldkuhl (2008) described three types of Pragmatism relevant to IS research;

- Functional Pragmatism
- Referential Pragmatism
- Methodological Pragmatism.

Functional Pragmatism is described as constructive knowledge; knowledge as a basis for action. Referential Pragmatism is described as knowledge about actions where the actors

become the primary studied object. Methodological Pragmatism is concerned with how knowledge is created. This study used functional Pragmatism to answer the research objective of practically creating a means of identifying and maximising the benefits of MEA in the organisation. The research goal was one of a practical outcome which changed practice in the organisation and created prescriptive knowledge. This research effort can be seen as creating useful knowledge for practice that is prescriptive for practical improvements in the current case study as well as producing constructive knowledge aimed at general practice.

Pragmatism offers an alternative worldview to that of positivism/post-positivism and constructivism and focuses on the problem to be researched and the consequences of the research (Felizer, 2010; Tashakkori & Teddlie, 1998). Pragmatism is not concerned with the debate between qualitative and quantitative enquiry methods as it is most often associated with mixed method strategies to answer the research questions (Felizer, 2010). Pragmatic research uses methods which are appropriate to answer the research questions and is less concerned with the traditional dictated methods of enquiry for positivist/anti-positivist studies those being quantitative and qualitative methods (Felizer, 2010). Pragmatism dictates that whatever method is deemed necessary to answer the research question is the most appropriate method.

## 3.2 Research Strategy

Two strategies were used to conduct the research, that of AR in a single organisation and a survey. The AR strategy was deemed to be suitable by the researcher because firstly the researcher worked in the case organisation and was aware of the BM problem which the organisation was experiencing and a solution was needed. Secondly, the researcher was part of the IT team responsible for creating MEA in the organisation and was able to participate in the projects which are often not possible for students doing research (Avison, Davison & Malaurent, 2018). Ultimately AR is an approach to understanding and improving problem situations in organisations while undertaking research and reporting new academic knowledge (Avison, Davison & Malaurent, 2018).

The case study approach commonly emphasises qualitative analysis (Yin, 1984). The case study approach seeks to understand the specific problem being investigated. It provides the opportunity to elicit deep and meaningful insights and capture the richness of organisational

behaviour, but a criticism is that the conclusions drawn may be specific to that particular case organisation and may not be generalizable (Gable, 1994). A Pragmatist position justified the application of AR because this research strategy is aimed at formulating improved methods of practice (Goldkuhl, 2004). Qualitative research in the realm of AR helps to gain an understanding of the social phenomena, in their natural setting and cultural context, which influence Information systems development and implementation (Myers, 1995). AR has been criticised for its lack of methodological rigour (Cohen, Manion & Morrison, 2007), its lack of distinction from consulting, as well as its failure to be comprehensive in either action or research (Davison, Martinsons, & Kock, 2004). AR is found in literature in various versions: Canonical AR, Dialogical AR, IS prototyping, Soft systems, Action science, and Participant observation (Baskerville & Wood-Harper, 1998; Chandler & Torbert, 2003; Davison & Martinsons, 2007). Canonical AR (CAR) is more widely practised and reported in literature than other versions (Davison et al., 2004).

Among the various forms of AR, CAR is unique in that it is iterative, rigorous and collaborative having a focus on both organisational development and the generation of knowledge (Davison et al., 2004). The iterative character of CAR implies a cyclic process of intervention where usually more than one cycle of activities is conducted to address the problem being experienced in the organisational situation (Davison et al., 2004). The collaborative characteristic of CAR also implies that the researcher and the organisational clients work collaboratively in roles that are appropriate given the context of the problem. The role of the researcher is not to dominate the research process without involvement from the client (Davison et al., 2004). A distinguishing trait of CAR as compared to other forms of AR involves the combination of theory and practice through a process of change and reflection in an immediate problematic situation within a mutually acceptable ethical framework (Avison, Lau, Myers & Nielsen, 1999). This is done with the intention of firstly improving practice and secondly contributing to theory and knowledge within and beyond the confines of the project (Eden & Huxham, 1996).

AR is criticised for being less scientific and less rigorous than other methods (Avison et al., 2018). Davison et al. (2004) proposed five principles to be followed for CAR which ensures rigour and relevance in a CAR study. These principles along with their criteria were followed in this research, and each will be addressed in the section describing the AR cycles:

1. The principle of the researcher-client agreement (RCA)
2. The principle of the cyclical process model (CPM)
3. The principle of theory
4. The principle of change through action, and
5. The principle of learning through reflection.

The principle of researcher-client agreement ensures that there is agreement on the process to be followed for the project, the roles of the participants, and the expectations of the outcomes. This agreement is discussed in further detail in section 3.6. If there are agreement and trust between the role players, then there is likely to be a collaborative learning environment conducive to achieving the goals of the project.

The second principle of cyclical process model meant that the activities planned for the intervention in the problem situation followed a cyclical model as shown in Figure 6.

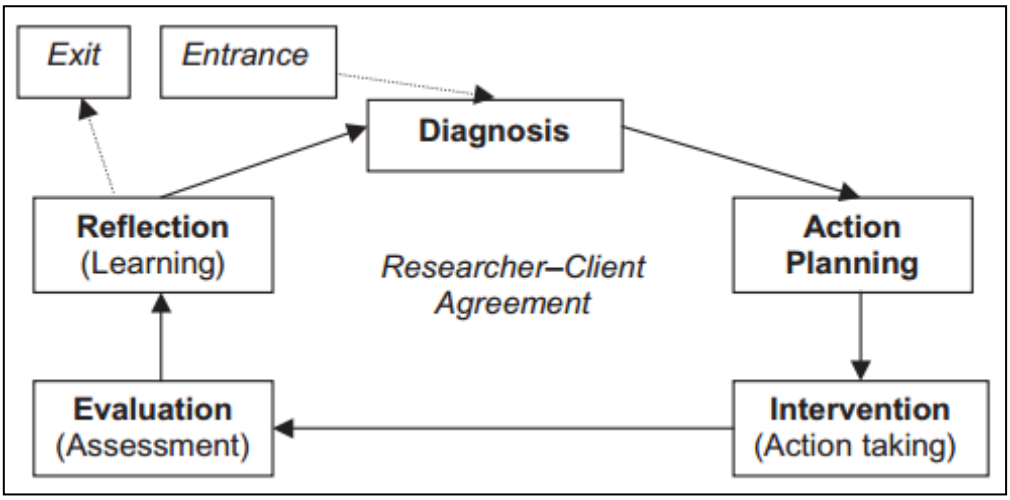


*Figure 5: CAR process model [Davison et al., 2004]*

The cyclical nature of CAR implies a unidirectional flow with diagnosis followed by planning, intervention and so forth. The steps in this cyclical process might not follow sequentially depending on the context of the research.

The principle of theory refers to the theory used in CAR. Davison et al. (2004) contend that if grounded theory does not emerge in the diagnosis stage, then explicit theorising is necessary as part of the planning stage. The theoretical basis for the action cycles was the BM model created from the literature which was refined in each cycle.

The principle of change through action involves the essence of CAR which is to take actions to change the current situation and its unsatisfactory conditions (Eden & Huxham, 1996). The interventions seek to bring about a change in the problem situation. For meaningful change to occur, both the researcher and client need to be working toward the goal of making a change.

Finally, the principle of learning through reflection answers the call by researchers for AR to be of use to both the client through practical outcomes as well as to researchers by creating new knowledge. Considered reflection and learning results in practical progress and the advancement of knowledge. To this end, the researcher had constant feedback sessions with the product owner and the development manager responsible for developing and managing the projects. On conclusion of each cycle, the researcher held sessions with the interested stakeholders to inform them about the progress of the cycle and where the BM process did and did not work. The theoretical process model was produced at the end of each cycle as part of the theoretical contribution and creation of new knowledge.

Along with the five principles, Davison et al., (2004) specified explicit criteria against which the CAR principles should be assessed in order to assure quality in planning, execution, and documentation of the research. These criteria were assessed after each stage in each AR cycle (ARC) in the study and will be discussed as part of the action cycles.

This strategy was suitable for this particular study as there was an existing problem in the area of BM and benefits realisation regarding mobile apps which required a practical solution. According to Jarvinen (2007), “AR contributes to the practical concerns of people in an immediate problematic situation”.

An AR strategy requires both data gathering and facilitation of change (Saunders, Lewis & Thornhill, 2009) which describes the intention of this particular research which was undertaken in the organisation. The reason for this research design being utilised was that the criteria required for AR existed within this organisation. There was an existing problem requiring a practical solution which the researcher was aware of, a solution needed to be developed to remedy the problem, the solution could be implemented and tested for its outcome, and the cycle could be repeated if required. Baskerville and Myers (2004) stress the

importance of explicitly specifying the theoretical purpose underlying the action to be taken. Otherwise, there is a risk that the intervention will be purposeless and therefore meaningless.

AR is often confused with design science (Baskerville, 2008). This confusion arises from the fact that both approaches are interventional, both involve solving an existing problem, and both involve evaluation (Baskerville, 2008). The main difference, however, hinges on the outcome of the design of an IT artefact (Jarvinen, 2007). AR has a focus on solving a problem through social and organisational change. Design science, on the other hand, is focused on problem-solving by creating and positioning an artefact in a natural setting (Baskerville, 2008).

Furthermore, Baskerville (2008) believes that AR is centred on discovery-through-action while design research is centred on discovery-through-design. Baskerville argues that AR is a methodology while design science is a paradigm. Based on these arguments from Baskerville, this researcher believed that AR and not design science was the appropriate research strategy to follow for this study. The investigation of organisational change, which allows for benefits management and tracking for MEA, was best achieved by using an AR strategy. There was no design element required for this study hence design science was not an appropriate research strategy.

This research strategy was also appropriate for the goals of this study, that being prescriptive in demonstrating how to practically identify, realise, and manage the benefits as well as identify the risks to benefits realisation when using MEA in the organisation. A Pragmatist position justifies the application of AR because this research strategy is aimed at formulating improved methods of practice. This research strategy not only catered to finding a practical solution to the specific problem being experienced in the case organisation, but it also answered the call made by Vuolle (2011) to operationalise the management of benefits for mobile services in general.

For this study, the need for a method to identify the benefits of MEA as well as improve the ability of MEAs to add value to the business processes in which they are used was a problem which existed in this organisation. From a theoretical perspective, AR allows the researcher to create prescriptive knowledge regarding the general problem, which in this case was a BM and realisation process for MEA in the organisation.

The second strategy employed to answer the adoption question in the study was that of a survey sent to the users of the MEAs. Surveys are generally associated with quantitative data collection and analysis where data is collected from multiple respondents and analysed to answer the research question (Gable, 1994). Surveys are customarily used for testing hypotheses. TAM studies originated from a quantitative study and a review of the literature by Wu (2012) reported that of 101 adoption studies, only three did not use a quantitative survey. Quantitative survey methods are well suited to investigating socio-psychological factors involved in user acceptance of technology systems (Wu, 2012). A survey represents a 'snap-shot' of the situation at a point in time and is not able to explain the underlying reasons for the relationships that may exist between constructs (Gable, 1994). This strategy was deemed appropriate to answer the adoption question in the study as the relationships between factors were taken from the literature and tested deductively with hypotheses as was the case in most other technology adoption research. Survey is the recognized strategy for testing hypotheses deductively (Gable, 1994). This method of study has previously produced rich findings concerning different user groups and a variety of technologies (Wu, 2012).

### 3.2.1 Combining the Cranfield and CAR process models

Figure 6 represents the mapping of the steps from the CAR process model and the Cranfield benefit process model into a combined benefits model to show where the benefit steps align with the CAR steps.

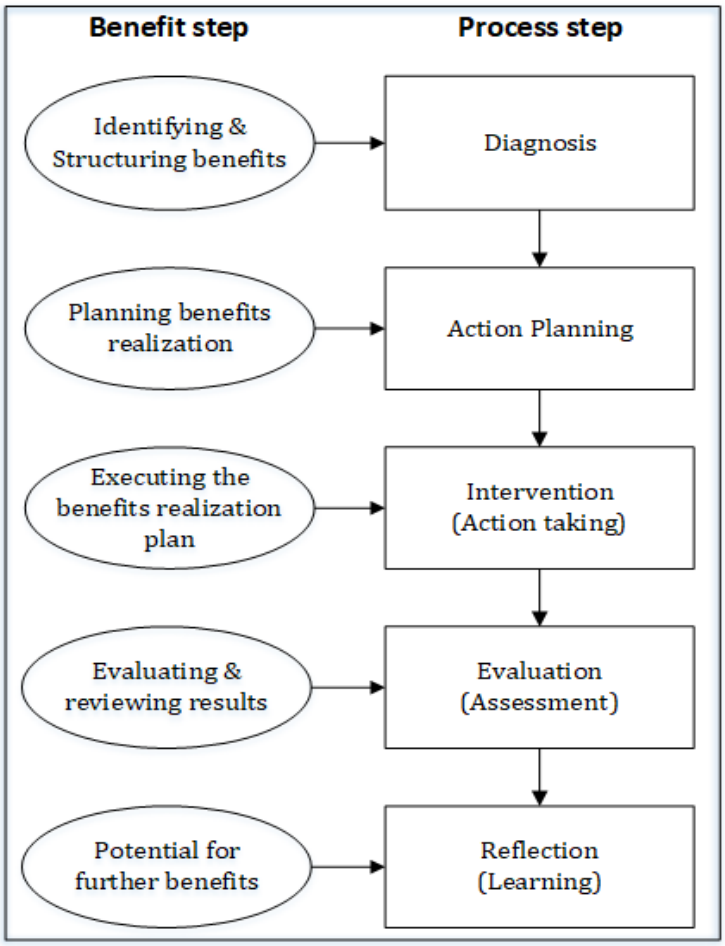


*Figure 6: Benefits realisation process model*

As can be seen from the diagram, at each step in the CAR process, there is a step where benefits are evaluated to ensure the maximum benefits are achieved for the project. As mention in the research strategy section of this thesis, the principles and criteria constructed by Davison et al. (2004) described the actions and criteria necessary in a cyclical process model, such as the CAR model used in this study. In their 3rd Principle of Theory, they believe that if grounded theory does not emerge from the diagnosis, then explicit theorising is necessary as part of the planning stage. It was with this principle in mind that the model in Figure 4 was created as the instrumental theory acting as a guide for addressing the BM process for question 1. This mapping served as the base for the process which was refined in the AR cycles.

### 3.2.2 Validity of Action Research

One of AR's main criticisms is that of lack of replicability (Checkland & Howell, 2007). Its validity is questioned as a mode of inquiry which could result in defensible and transferable results. In social science when one is looking at a particular problem situation, it is important

to note that the actors in the situation have their individual and shared histories as does the organisation as a whole have its historical context which manifests in the behaviours of the individuals. It is therefore not possible to guarantee that results found in one situation may be transferrable to other situations (Checkland & Howell, 2007). What is of importance in an AR study is to declare upfront the epistemology (the set of ideas and how they are used methodologically) by which the researcher will make sense of their research and thereby define what for them counts as acquired knowledge. This is done so that other researchers can subject the research and findings to critical scrutiny (Checkland & Howell, 2007).

To enhance the credibility challenges of CAR, Davison et al. (2012) suggested that the role of theory in a CAR study be specified explicitly. Two types of theory were defined by them focal and instrumental. A focal theory provides the intellectual basis for action-oriented change in a CAR project. An instrumental theory is used to explain phenomena which include processes and tools that are used to establish and verify focal theories (Davison et al., 2012). Instrumental theories theorise how work is done or how outcomes are achieved. In this study, the BM process defined from the literature and refined in the AR cycles qualifies as the instrumental theory. In qualitative studies, it is essential that findings be backed up by arguments and evidence which ties back to the stated epistemology which was declared.

This study addressed the validity concern by specifying the theoretical basis, found in literature, against which the study was based. The initial BM process was taken from literature and refined in the action cycles. Also, the benefits, risks, and adoption questions were initially based on theory and answered with explicitly stated methods and evidence. The evidence of the results was demonstrated which gives credibility to the findings and validity to the process which was followed to arrive at the findings.

## 3.3 The Case Organisation

InsureUs is a short-term insurance company in the Western Cape, South Africa. The organisation is the oldest short-term insurance company in the country and employs approximately 4000 people. The insurance business is very complex and is made up of many business units ranging from short-term personal insurance to commercial, specialist, and agriculture insurance. The organisation had made a strategic decision to make digital a strategic focus for growth and sustainability and as such portals and mobile apps have

received special attention. While the organisation has many legacy systems, which drive the back-office daily operations, new technology is welcomed and as such MEA were being investigated as business applications which can exploit newer technologies such as tablets. MEA are ideally suited to this industry because most of the service providers such as brokers and assessors spend most of their time out of the office visiting clients and sites, so mobility plays an important role in their daily job functions.

The three applications selected for this study are the first three that were built internally by the IT department. The Multi-Peril Crop Insurance (MPCI) and Agri assessment MEAs were created for the agricultural business and are used by assessors whose job it is to go out to farms and do assessments of the risk insured as well as assessing claims. The MPCI MEA is a mobile application which is used to assess the growth stages of the crop being insured so that a value may be derived for the insurance cover. It is a technical process that requires various crop samples to be taken from across the planted area so that the quality of the crop can be assessed. The manual process required the assessor to carry multiple manuals which were used to calculate the values. The Agri assessment MEA was used for the claims process for crop insurance. When a farmer had a crop loss, the assessor was required to assess the extent of the damage manually by referring to lookup tables in multiple books which were laborious and time-consuming. The third MEA, the Risk assessment app, was requested by the Risk division in the organisation. Surveying risks is a problem due to the high number of assessments needing to be done in the organisation. The Risk app was intended to be used by brokers to do their own risk assessments for new policies and renewals. The relationship with the organisation between the two user groups, the assessors and brokers, is different. The assessors are mandated to use the tools provided by InsureUs if they want to be selected as service providers while the brokers are not obliged to use them. In other words, the assessor apps are mandatory while the use of the Risk assessment app is voluntary.

The organisation has its own IT development capacity which is capable of developing any system required by the business. The process which is followed in order to have a system or application developed is that the respective business unit needs to request a solution to a problem which is being experienced or which can deliver benefits to that business unit. In the case of the MEAs which were used in this study, the agriculture business and the risk services

units requested the development of the mobile apps as they believed the MEAs would solve problems which will be explained in later sections.

The organisation has a mature project management capability with an established project office and strict governance regarding project management and funding. At the time of this study, the organisation was in the middle of a strategic project to replace their mainframe policy administration system with a server-based system. This project was the main IT project in the organisation which consumed the most resources from the IT department as well as the project office.

## 3.4 Research Purpose and Expected Contribution

Gregor (2006) advises researchers to approach theory development by first looking at the research problem and then their research questions. The researcher can then determine which type of theory creation is relevant for the problem given the current state of knowledge in the specific area and using the classes which she derived in her essay on theory development.

Gregor (2006) defines three different views of theory in IS;

1. Theory as statements that say *how* something should be done in practice
2. Theory as statements providing *a lens for viewing* or *explaining* the world, and
3. Theory as statements of *relationships among constructs* that can be tested.

Furthermore, she goes on to classify four primary goals of theory, these being;

1. *Analysis and description* – the theory describes the phenomenon of interest, analysis of relationships amongst those constructs, the degree of generalizability in constructs and relationships and the boundaries within which relationships hold.
2. *Explanation* – the theory explains how, why, and when things happened.
3. *Prediction* - the theory states what will happen in future if certain preconditions hold.
4. *Prescription* – the theory provides a description of the method or structure or both for the construction of an artifact.

Based on the Pragmatist research approach and using an AR strategy to answer the first question in this study, the theory of statements prescribing how something should be done in practice was deemed most applicable as the theoretical contribution resulting from the answering of the question. The theoretical goal was to prescribe the method to be used in

the organisation to manage the benefits and ensure that the identified benefits are realised from the use of MEA. Stated more specifically the first intended contribution was, therefore, a process stating how something should be done in practice and more specifically, how benefits should be managed when creating and utilising MEA in an organisation.

This contribution was intended to improve a BM problem through the intervention and refinement of a BM and realisation process be used for determining and managing benefits of MEA. This allowed for a secondary more general intended contribution which was, generation of constructive knowledge aimed for general practice regarding benefits realisation for MEA at an organisation level. Researchers (Marnewick, 2016; Terlizzi et al., 2017) have called for research in various industries and countries showing how BM is implemented and varies in different contexts. This research was conducted in the short-term insurance industry in South Africa which answers the call. The literature also shows that BM is implemented poorly in organisations (Coombs, 2015). This study intended to develop a BM process which could be used for MEA projects thereby providing a practical contribution.

The theoretical contribution of question two, which identifies the benefits to be realised from the use of MEAs in the insurance industry, satisfies the goal in Gregor's classification of analysis and description. The theoretical contribution of question two intended to describe the benefits of using MEAs in the short-term insurance industry, which has not previously been described in this context in the literature. The importance of defining the expected benefits from a project upfront is discussed in the literature (Albertin & Sanchez, 2008; Marnewick, 2016) and this study set out to provide a list of benefits which could make this process simpler for future MEA projects. The practical value of this identification can be used by organisations wanting to build a business case for introducing MEAs into their business processes. This expected contribution will potentially be valuable for general practice as well as for adding to the body of knowledge for MEA.

The third question relating to risks which prevent the realisation of the expected benefits from the use of MEA meets Gregor's first goal in her classification namely description. The intended contribution provided by answering question three was the identification and description of which factors result in the failure of benefits being realised when using MEA. This expected contribution is useful for general practice for organisations wanting to

maximise the potential benefits which can be realised for the organisation by including MEA in their business processes by removing potential obstacles to that goal.

The fourth question satisfies Gregor's first theoretical goal of analysis and description. By understanding the factors influencing adoption of MEA by users, organisations are better able to plan for ways in which to remove obstacles to their adoption. The benefits of MEA are only achievable if the MEA is used and used enthusiastically by the user community. Understanding the factors which have a bearing on the adoption will allow for maximum benefits realisation which makes this expected contribution relevant to both theory and practice.

The philosophical approach adopted for this study is that of Pragmatism. This approach as stated earlier has the goal of providing knowledge for practical action. The strategy adopted namely AR is concerned with both having a practical intervention which improves a problem situation as its outcome as well as a theoretical contribution to the specific body of knowledge relating to the research problem. The contributions listed above satisfy the requirements of both the Pragmatist approach as well as the AR strategy.

## 3.5 Ethics and Researcher-Client Agreement

The researcher obtained ethics approval from the University for this study before approaching the organisation for permission. The researcher-client agreement provides the foundation for an AR project (Davison and Martinsons, 2007). It creates the rules of engagement for the researcher as well as setting the roles, responsibilities and expectations for behaviour on both sides (Davison and Martinsons, 2007). It is important for client stakeholders to understand that they are active participants in the process and not by-standers. The researcher also needs to be conscious of not dominating the process as it is a shared experience (Davison and Martinsons, 2007). For this research, the researcher was a development manager in the Digital team responsible for creating the MEAs in the organisation and as such, had access to the role-players both in the business as well as the IT teams. Being close to the parties allowed the researcher to participate in the projects for the study and participate to the extent of implementing changes to the BM process throughout the projects. The agreement between the researcher and the main stakeholders was that a BM process would be created as an outcome to the study which could be used in other such projects in the organisation.

Permission was sought from the CIO to do this research which was granted. The participants in the study were guaranteed of their anonymity, and each participant was shown their transcripts after their interviews so that they could validate that what had been transcribed by the researcher was what they had said. The participants were also allowed to withdraw from the research at any point. All of the transcripts were anonymised to hide the identity of the participant. The researcher was not directly involved in a work capacity in any of the projects used in this study other than as an external participant for research. The business owners of these projects and also the senior IT managers were enthusiastic to have this research conducted in their projects as everyone in the organisation was aware that there is a persisting problem around benefits realisation in these digital projects.

Each of the participants signed a letter agreeing to participate in the study Appendix 9, and they were given the guarantee that their identities would be anonymised. The participant's views which could have been considered to be negatively directed at the organisation or any of the other participants were kept confidential. The participants were given the option to withdraw from the research at any point. The research findings were made available to the participants so that they had an opportunity to validate what the researcher had determined from their interviews.

## 3.6 Data Collection

Qualitative research in the realm of AR helps to gain an understanding of the social phenomena, in their natural setting and cultural context, which influence Information systems development and implementation (Myers, 1995).

Table 7 details how the data was collected for this study, the type of data and during which stage of the research. It also shows the sampling strategy employed to obtain data from participants.

| **Collection method** | **Sampling strategy** | **Type of data** | **When collected** |
|---|---|---|---|
| 1-on 1 interviews | All project stakeholders | 6 Recorded interviews | Start of ARC1 |
| 1-on-1 interviews at each ARC stage to collect relevant data | Participants able to add insight into the stage of the project | 7 Qualitative recorded interviews | During ARC1 & ARC2 |
| MPCI MEA Business Case | Project documentation | 1 document Secondary data | Start of ARC1 |

| | | | |
|---|---|---|---|
| AGRI MEA Business Case | Project documentation | 1 document<br>Secondary data | Start of ARC1 |
| Agri MEA Benefits used for initial business case | Project documentation | 1 document<br>Secondary data | Start of ARC1 |
| Risk MEA Targets | Project documentation | 1 Secondary data | Start of ARC2 |
| Risk Assessment benefit matrix | Project documentation | 1 document<br>Secondary data | Start of ARC2 |
| Risk MEA scope matrix | Project documentation | 1 document<br>Secondary data | Start of ARC2 |
| Risk MEA steercom minutes | Meeting minutes | Seven meeting minutes<br>Secondary data | Duration of ARC2 |
| Risk MEA usability results | | One report<br>Secondary data | Planning stage of ARC2 |
| Survey | Assessors and brokers using the MEA | 88 surveys<br>Quantitative data | During ARC 2 |

*Table 7: Data collection method, type and timeline*

Different data collection methods were used to answer the different questions asked in this study. For the AR sections which investigated the BM process and identifying benefits and risks, qualitative data gathered from interviews and secondary data from business cases and minutes of meetings were used for the investigation. The definition of qualitative research used by Kaplan and Maxwell (2005) is described as follows, "The goal of qualitative research is understanding issues or particular situations by investigating the perspectives and behaviour of the people in these situations and the context in which they act". This definition describes the reason for selecting this research approach for this particular study. The ability to understand the meaning, reasons and context of the phenomena being studied in its natural setting is the primary strength of the qualitative methodology (Maxwell, 1992). The various types of word data employed by qualitative methods include transcripts of open-ended interviews, written observations of activities and conversations as well as documents and other artefacts of people's actions (Kaplan & Maxwell, 2005). The qualitative analysis of this data retains its inherent textual nature to understand a phenomenon from the participant in a particular social and institutional context (Kaplan & Maxwell, 2005). By quantifying and aggregating the textual data, these goals are largely lost (Maxwell, 1992). The data were collected from semi-structured interviews with research participants as well as from surveys. Secondary data such as externally generated focus group results and business cases which were presented to steering committees which oversaw budgets for MEA projects were also included. Davison et al. (2004) recommended that data collection before, during and after the

action-taking step of the CAR process should ensure a rich pool of data be available for analysis and as such interview data were collected at various stages in the cycles.

Quantitative data collected from a survey was used to understand the adoption of the MEAs. TAM studies dominate the literature on adoption research (Vogelsang, Steinhüser & Hoppe, 2013). Quantitative approached which are based on TAM are the most dominant in this research domain Lee & Baskerville, 2003). Quantitative data collection is done primarily with surveys. A mixed method approach was used to validate all of the constructs in the final model in Figure 13. This was necessary as not all constructs in the model were investigated with the survey instrument, and some of the constructs such as the benefits only surfaced from the qualitative interview data with the MEA stakeholders. Mixed methods are not new in IS research. However, its advantages have not been fully appreciated (Wu, 2011). Mixed methods are not only effective for collecting and analysing data but also have the potential for theory building (Wu, 2011). The richness offered to findings in a mixed method study comes from the combination of both the quantitative as well as the qualitative insights. Quantitative research alone does not allow for a deep and multi-faceted analysis of the studied subject (Cameron, 2011). This research primarily adopted the mixed method approach to produce a complete picture and a richer understanding of the environment influencing the use of MEAs and the effect which that has on the benefits accrued to the organisation employing the MEAs.

There were two separate objectives for the data collection. The first objective was to answer the first research question about the BM process and the second objective was to identify the benefits and risks from the MEAs. This data pertained to the BM process, the benefits of the MEA and the risks to those benefits already identified in the previous apps. The benefits and risks were collected from the interview discussions and also from looking at the business case and other secondary data. The data collection was done per MEA project as the ARC cycles were conducted for the Agri and Risk MEA projects respectively. The first round of interviews covered the MPCI and Agri MEA projects together. Interviews were then conducted during the various phases of the ARC1. At the beginning of the Risk MEA project interviews for that MEA were conducted and again throughout the various stages of ARC2. Each method of collecting data per MEA project will be discussed in further detail now.

### 3.6.1 Data Collection for MPCI MEA project

By the time this research had started, the first MEA (MPCI reporting) had already been developed, and it was available to a pilot group of assessors. The researcher performed the diagnosis step retrospectively to understand how the project had been initiated, why it had been undertaken, and how the BM was carried out. The researcher interviewed the product owner who had requested the creation of the MPCI MEA and the Development manager responsible for building it to understand the process which was followed for this MEA's creation. Additionally, the Business change manager who controlled the budget for these mobile projects was also interviewed. The interviews were semi-structured.

The primary method of data collection was interviews with several role players (Table 8) involved the creation of the MEA.

| Code | Job Title/ Data Source | Seniority |
|---|---|---|
| PO1 | Product Owner | Senior |
| DM1 | Development Manager | Senior |
| BCM1 | Business Change Manager | Senior |
| PM1 | Head Portfolio Manager | Senior |
| BC | Business case | |

*Table 8: Research participants and data sources for MPCI MEA*

The interview guide in Appendix 6 was divided into 3 sections based on the structure used by Marnewick (2016), the first being the introductory questions, the second focused on the benefits management process and the last section on project success and the realisation of benefits and how they are linked to the organisation's strategic success.

The MPCI project was used as a basis for identifying how the BM was being performed in the organisation and a new process was defined according to the BM process in Figure 4 with the aim of improving the BM for the second MEA project. The first step was for the researcher to identify the process which was carried out to initiate the MPCI project. The researcher wanted to understand how the project had been initiated and how benefits were identified and tracked. The business case that was created after the MPCI MEA was already developed was analysed to identify the benefits which were expected once the MEA was live. Although there

was no formal benefit identification upfront, some thought went into creating a business case once the MEA was developed as it was needed to obtain funding for projects. The benefits were tracked once the app was live. The data collected about the process used for BM in this first MEA went into the action planning stage of ARC1. The benefits and risks template compiled from the MPCI project is shown in Appendix 1.

### 3.6.2 Data collection for the AGRI MEA project (ARC 1)

The data collected for the Agri assessment MEA was primarily qualitative data obtained through one-on-one semi-structured interviews with the role-players in the Agri MEA project. Table 9 lists the interviewees and their experience level. At the time that the research started, the second Agri assessment application was already being developed. The initial interviews with the stakeholders covered both the first as well as the second MEA. The role-players were the same group of people. Therefore, it was possible to ask questions related to the process of both MEA. While this report is written as distinct MEA cycles, the interviews with some of the participants covered both the MPCI and the AGRI MEAs. The MPCI and Agri MEAs were developed for the same product owner and the same development team was used for both therefore the research participants were able to speak to both projects during the same interviews. Likewise, the same applied to the Agri and Risk projects. The tables of research participants appear to state more interviews were carried out than are actually specified for this reason. At the time of the first interviews, the funding process for the second Agri MEA was underway, so the interviewees were able to compare the process followed for the first MEA project with the second which proved helpful in understanding whether any improvements had been made since the first MPCI MEA project.

| Code | Job Title / Data Source | Level |
|---|---|---|
| PO1 | Product Owner | Senior |
| DM1 | Development Manager | Senior |
| BCM1 | Business Change Manager | Senior |
| PM1 | Head Portfolio Manager | Senior |
| BMA1 | Project office BM administrator | Intermediate |
| PA1 | Project office Portfolio administrator | Junior |

| | | |
|---|---|---|
| BC | Business case for Agri MEA project | |
| MM | Minutes of steering committee meetings | |

*Table 9: Research participants and data sources for ARC1*

The researcher probed the interviewees to understand the methods used for BM in the Agri project and how the lesson learned from the MPCI project would be applied to the Agri project?

At various stages during ARC1, the researcher interviewed the development manager and the product owner to gather more data for each stage. Secondary data in the form of meeting minutes, related to the benefits tracking and project progress meetings were collected and analysed to gain insights into the progress of the BM and obstacles to BM during the life of the project and once the MEA was live and being used.

### 3.6.3 Data collection for Risk Assessment MEA project (ARC 2)

The data collected in each of the previous MEA projects formed part of the final ARC for the third MEA. During the diagnosis phase of ARC2, the learnings from ARC1 were collated from documentation and semi-structured interviews. Likewise, the benefits and risks from the previous projects were used as a starting point in ARC2. The interviews were conducted with the role-players in the project as listed in Table 10:

| Code | Job Title / Data Source | Level |
|---|---|---|
| PO1 | Product Owner | Senior |
| DM1 | Development Manager | Senior |
| BCM1 | Business Change Manager | Senior |
| PM1 | Head Portfolio Manager | Senior |
| BM1 | Project office BM administrator | Intermediate |
| PA1 | Project office Portfolio administrator | Junior |
| PM2 | Project Manager | Intermediate |
| DM2 | Head of Digital | Senior |
| BC | Business case | |

| | | |
|---|---|---|
| MM | Minutes of steering committee meetings | |
| BT | Benefit and Risk template from ARC1 | |

*Table 10: Research participants and data sources for ARC2*

The same interview process was used in ARC2 as in the previous projects where the researcher probed the interviewees to understand the methods used for BM in the Risk project and how the lesson learned from the other two MEA projects would be applied in the Risk MEA project?

Secondary data from steering committee meetings, held monthly for ARC2, were analysed to identify information which surfaced which was relevant to BM and this study. The targets set for the MEA and the cost/benefits analysis are shown in Appendix 2. During the various stages of ARC2, the researcher went back to interview selected role-players such as the product owner and the development manager to probe how the BM was progressing and which issues were presenting themselves regarding the use of the MEA.

At the end of ARC2, the researcher interviewed the portfolio manager, the business change manager and the development manager and showed them the resultant BM process and benefits template to get their views on these two artefacts. The researcher sought their views on how the research had gone and whether problems in the organisation had been resolved with this research.

### 3.6.4 Data collection for adoption survey

To answer question four, 'What are the factors which influence the adoption of MEA by individuals?', a survey instrument was created (Appendix 7) using a simpler version of the method described by Moore and Benbasat (1991) in that the researcher did not make use of judges to select the items but followed the principles described by Moore and Benbasat.

Stage 1 was to identify items from existing literature and then to modify the items to fit the specific technology being examined. This first step ensured content validity. The items were selected on the basis of them covering the relevant construct. The items were checked for ambiguity and redundancy which could have the effect of loading on more than one factor. Moore and Benbasat also point out that it is important not only to focus on the behaviour towards the innovation but also to delineate the various elements of behaviour to develop an accurate indication of respondents' perceptions. Elements that must be covered by the

instrument items are the actual behaviour, the target at which the behaviour is directed, a context for the behaviour (in one's job), and a time frame (now and into the future). These elements were deemed to be covered by the selection of the items in the questionnaire.

Stage 2 of the process assessed the construct validity and further eliminated ambiguous items. While the Moore and Benbasat method made use of judges to rate the items, this researcher rated the items from prior studies alone. The theoretical constructs used in the survey were validated items from prior studies of adoption of technology as listed in Table 11. The items selected from prior studies associated with the constructs in this survey were assessed for applicability in this study. If the items addressed this particular study's constructs, they were included in the instrument.

*Table 11: Construct, Survey item and Item source*

| **Construct** | **Num** | **Question** | **Reference** |
|---|---|---|---|
| Perceived Usefulness | 2 | Using the app improves my performance in my job | Venkatesh & Davis (2000) |
| | 3 | Using the app in my job increases my productivity | |
| | 4 | Using the app enhances my effectiveness in my job | |
| | 5 | I find the app to be useful in my job | |
| Perceived Ease of Use | 6 | My interaction with the app is clear and understandable | Venkatesh & Davis (2000) |
| | 7 | Interacting with the app does not require a lot of my mental effort | |
| | 8 | I find the app easy to use | |
| | 9 | I find it easy to get the app to do what I want it to do | |
| Subjective Norm | 10 | People who influence my behaviour think that I should use the app | Venkatesh & Davis (2000) |
| | 11 | People who are important to me think I should use the app | |
| Experience | 12 | I have a great deal of experience using apps | |

| | | | |
|---|---|---|---|
| | 13 | I have used apps for a number of years | Gardner & Amoroso (2004) |
| Image | 14 | People who have the same job as me, who use the app, have more prestige than those that don't | Venkatesh & Davis (2000) |
| | 15 | People in the organisation that use the app have a high profile | |
| | 16 | Having the app is a status symbol in the organisation | |
| Job relevance | 17 | In my job, usage of the app is important | Venkatesh & Davis (2000) |
| | 18 | In my job, usage of the app is relevant | |
| Output Quality | 19 | The quality of the output I get from the app is high | Venkatesh & Davis (2000) |
| | 20 | The quality of the app's output is high | |
| Result demonstrability | 21 | I find it easy telling others about the results of using the app | Venkatesh & Davis (2000) |
| | 22 | The results of using the app are apparent to me | |
| | 23 | I believe I could communicate to others the consequences of using the app | |
| Symbolic Adoption | 24 | I am enthusiastic about using the app | Seymour, Makanya & Berrange (2007) |
| | 26 | I am excited about using the app for my assessments/surveys | |
| | 27 | I desire to see everyone using the app for assessments/surveys | |
| Mobility | 28 | The app is very mobile | Chen & Nath, 2004 |
| Time criticality | 29 | The app saves me time when doing my job | |
| Location dependency | 30 | The app gives me access to information wherever I am working | |

| | | | |
|---|---|---|---|
| Portability | 31 | The mobile device I used to do the assessment /survey is so small that I can take it anywhere | Gebauer, Shaw & Subramanyam (2007) |
| | 32 | The mobile device I used to do the assessment /survey is so light that I can keep it with me everywhere | |
| Maturity | 33 | If the performance of the mobile app were improved, my usage of the app would increase | |
| | 34 | If the performance of the mobile app were improved, the app would be more useful to me | |
| Perceived loss of control | 35 | The use of the mobile app is not voluntary | Lee & Park (2008) |
| | 36 | We had no choice but to use the app | |
| Company's willingness to fund | 37 | In my job, funding from Santam is crucial for me because, with new technology, I too often risk paying a lot of money for something that is not worth much | Kim (2008) |
| | 38 | In my job, if a company pays for any cost to use a tablet, I will definitely use it. | |

Stage 3 involved the testing of the instrument. A pilot test was conducted with 10 users from the business unit responsible for creating the MPCI and Agri MEAs. The pilot test checked the mechanics of distributing and collecting the questionnaires. The participants were asked to comment on the length of the questionnaire, the wording, and the instructions. Moore and Benbasat also used the pilot test to make an initial reliability assessment of the scales. This step was not performed in this study.

During the final stages of ARC2, to understand the adoption of the MEAs, this survey was sent to 340 assessors using a survey platform called Qualtrics, which assessed their adoption of the MEAs used in this research. Surveys were sent out to users of the MEAs which were made up of assessors who work for the organisation and brokers who are independent users of the Risk MEA. The product owner provided a list of email addresses for each of the assessors who

would be using the MEA and the invitation to participate in the survey was sent to all assessors. The mail sent to the survey group is found in Appendix 8. 88 responses were received from the sample group.

## 3.7 Data Analysis

The method which was used to analyse the data for each question will now be discussed in turn. The process used for analysing the qualitative interviews was the same for all 3 qualitative questions namely question 1, 2 and 3. The interviews were transcribed from digital voice recordings and then checked for accuracy against the recordings. The transcripts were then loaded into a computer-assisted qualitative data analysis (CAQDAS) software package called HyperResearch for analysis along with secondary data supporting documents (Lewins & Silver, 2008). The transcripts were then coded in the software for analysis purposes to identify relationships between issues, concepts and themes, and then to develop higher order categories (Lewins & Silver, 2008). Examples of the codes and the related text are demonstrated in *Appendix 10*. The coding also allows for the development of a detailed understanding of the phenomena which the data was seen to be presenting (Marnewick, 2016). The interview questions attempted to understand the process used for benefit identification and management in the project. According to Mangan, Lalwani and Gardner (2004) codes can be generated inductively or deductively. Deductive codes are assigned to predefined areas of interest while inductive codes surface from salient aspects of the data (Marnewick, 2016). The researcher used inductive codes so as not to bias predefined areas of interest in the data. Inductive coding allowed for a richer analysis which would not have been possible using deductive coding. The inductive coding followed a 3-step process described by Marnewick (2016):

1. *Perform open coding*. This is the first round of coding which considers segments of data and generates a large number of codes.
2. *Perform axial coding*. The codes are examined for duplication and clarity and where appropriate, codes are combined and new ones created.
3. *Perform selective coding*. The codes are revisited, and instances in the data which demonstrate themes are identified. Conclusions are validated by illustrating instances represented by and grounded in the data.

As discussed already, the data collection for the MPCI MEA project and Agri MEA project were combined during the interviews and separated as much as possible during the analysis stage using HyperResearch. Each MEA project had its own HyperResearch project, and the coding was done per project so as not to confuse the data between projects. The initial coding was re-evaluated after the first analysis, and some codes were changed and other combined to eliminate duplicates. The data analysis per project spanned multiple research questions. In each project, the BM process, benefits of the MEA, and risks to the benefits realisation were determined from the data.

The coding of the individual MEA projects will now be discussed and the codes as well their frequencies will be enumerated to show how the findings to each of the questions surfaced from the data analysis.

### 3.7.1 MPCI MEA Project Analysis

The MPCI assessment app was not a formal AR cycle in this study as the project was already well underway when the research started. Data was however collected and analysed to understand how MEA were being approached and which processes for BM were used in the organisation. The findings from the analysis of the MPCI served as a starting point to understand how BM should be approached for MEA and which learnings had been discovered. Table 12, Table 13 and Table 14 show how the codes were refined during the analysis of the MPCI data. The original list of codes from the analysis led to the codes in Table 12. After the first revision of the coding, 15 codes were identified which was then further revised for duplication and grouped by related codes in Table 13. The final list of 8 codes in Table 14 relates to the BM process identified in the MPCI project.

| Code | Total |
|---|---|
| Identifying MPCI MEA benefits | 29 |
| The process used for BM for MPCI | 25 |
| Lack of benefits measurement and tracking | 15 |
| Informal benefit identification | 6 |
| Lessons learned from MPCI MEA | 6 |
| Resistance from users | 6 |
| Appropriate business process selection | 5 |
| Identification of intangible benefits | 4 |

| | | |
|---|---|---|
| No MEA strategy in organisation | 4 | |
| BM must be communicated | 2 | |
| BM Process was informal or did not exist | 2 | |
| Mitigation to risks | 2 | |
| Risks to benefits realisation | 1 | |
| Benefits not tracked for small projects | 1 | |
| Inability to track MEA costs | 1 | |

*Table 12: MPCI Code frequency*

| Code | Total |
|---|---|
| ▼All Codes | 109 |
| Appropriate business process selection | 5 |
| ▼Risks to benefits realisation | 11 |
| Identified risks to benefits realisation | 9 |
| Mitigation to risks | 2 |
| Benefits not tracked for small projects | 2 |
| BM must be communicated | 2 |
| Lack of benefits measurement and tracking | 14 |
| Lessons learned from MPCI MEA | 6 |
| No MEA strategy in organisation | 4 |
| ▼Process for Identifying MPCI MEA benefits | 41 |
| Importance of Identifying intangible benefits | 4 |
| Process used for Identifying MPCI MEA benefits | 37 |
| The process used for BM for MPCI | 24 |

*Table 13: Code frequency tree MPCI MEA*

| Code | Total | |
|---|---|---|
| Process used for Identifying MPCI MEA benefits | 37 | |
| The process used for BM for MPCI | 24 | |
| Lack of benefit measurement and tracking | 14 | |
| Lessons learned from MPCI MEA | 6 | |
| Appropriate business process selection | 5 | |
| No MEA strategy in organisation | 4 | |
| Benefits not tracked for small projects | 2 | |
| BM must be communicated | 2 | |

*Table 14: Final revised list of MPCI codes*

### 3.7.2 Agri MEA Project Analysis

Following the same process for coding as in the first project, once the initial coding had been completed, the researcher revisited the transcriptions and ensured that the themes were

correctly coded and some duplicate codes were merged. Table 15 shows the themes and their frequencies that were identified for the Agri MEA project. A further round of revisions was then conducted to reduce the list of 18 codes to 8 (Table 16) of the highest frequency codes. A total of 8 codes remained for the analysis of the Agri assessment app BM process.

| Code | Total |
|---|---|
| Identified benefits of Agri MEA | 23 |
| Identified risks to benefits realisation | 7 |
| Better planning in Agri | 4 |
| BM process more formalized for Agri | 4 |
| BM important for mobility projects | 3 |
| BM Process not formal | 3 |
| Change management important in mobile | 2 |
| Development process is not structured | 2 |
| Improve from lessons learned | 2 |
| Need for proper planning | 2 |
| Need to understand the manual process | 2 |
| Reason for creating Agri MEA | 2 |
| Repeat mistakes between projects | 2 |
| Importance of template for benefits | 1 |
| Important to pilot the MEA | 1 |
| Mandatory use of MEA | 1 |
| Poor documentation of process | 1 |
| Problems experienced with MEA | 1 |

*Table 15: Agri MEA Code frequency*

| Code | Total |
|---|---|
| Process used for Identifying Agri MEA benefits | 37 |
| The process used for BM for Agri | 22 |
| Lack of benefits measurement and tracking | 14 |
| Lessons learned from Agri MEA | 6 |
| No MEA strategy in organisation | 4 |
| Benefits not tracked for small projects | 2 |
| BM must be communicated | 2 |
| BM Process was informal or did not exist | 2 |

*Table 16: Agri MEA final code list*

### 3.7.3 Risk Assessment MEA Project Analysis

Table 17 shows the codes and code frequency from the initial review of the Risk MEA project data. The minutes of meetings were also coded in HyperResearch. The benefits identified in the business case were included in the benefits template used for this project. The initial list

of codes in Table 17 was further reduced by combining similar theses and removing duplicates resulting in the list of codes in Table 18. A final list of 25 codes was identified and then after further review to extract the most important themes for BM in the Risk MEA project, the final list of 13 codes in Table 19 emerged.

| Code | Total |
|---|---|
| Benefits are difficult to define | 12 |
| No learnings carried over between projects | 12 |
| BM only for big initiatives | 11 |
| Lack of frequent and on-going reflection | 10 |
| Lack of planning | 10 |
| Identified benefits of Risk app | 9 |
| No measurement of benefits | 9 |
| Poor BM in organisation | 9 |
| Focus on financial benefits | 8 |
| Need for champions to promote the MEA | 8 |
| Adoption is low | 6 |
| Incorrect people in BM team | 6 |
| Mitigations to risks | 6 |
| Identified risks to benefits realisation | 5 |
| User resistance to using MEA | 5 |
| Business case not comprehensive | 3 |
| Importance of change management to promote MEA | 3 |
| Mobile is different from traditional systems | 3 |
| Don't understand user requirements | 2 |
| Focus on funding, not benefits | 2 |
| Important to pilot the MEA | 2 |
| Intangible benefits ignored | 2 |
| Lack of leadership | 2 |
| Need for support of MEA | 2 |
| Silos cause a disconnect in BM | 1 |

*Table 17: Risk MEA Code frequency*

| | |
|---|---|
| ▼All Codes | 148 |
| ▼Risks to benefits realisation | 24 |
| Identified risks to benefits realisation | 5 |
| Mitigations to risks | 6 |
| Need for support of MEA | 2 |
| Problem with the adoption of MEA | 6 |
| User resistance to using MEA | 5 |
| ▼Benefit identification | 42 |
| Benefits are difficult to define | 12 |
| Focus on financial benefits | 8 |

| | |
|---|---|
| Focus on funding, not benefits | 2 |
| Identified benefits of Risk app | 9 |
| Intangible benefits ignored | 2 |
| No measurement of benefits | 9 |
| ▼BM issues | 52 |
| BM only for big initiatives | 11 |
| Business case not comprehensive | 3 |
| Don't understand user requirements | 2 |
| Incorrect people in BM team | 6 |
| Lack of frequent and on-going reflection | 10 |
| Lack of planning | 10 |
| Poor BM in organisation | 9 |
| Silos cause a disconnect in BM | 1 |
| Importance of change management to promote MEA | 3 |
| Important to pilot the MEA | 2 |
| Lack of leadership | 2 |
| Mobile is different from traditional systems | 3 |
| Need for champions to promote the MEA | 8 |
| No learnings carried over between projects | 12 |

*Table 18: Code frequency tree for Risk MEA*

| Code | Total |
|---|---|
| ▼BM issues | 52 |
| ▼Benefit identification | 42 |
| ▼Barriers to benefit realization | 24 |
| No learnings carried over between projects | 12 |
| BM only for big initiatives | 11 |
| Lack of frequent and on-going reflection | 10 |
| Lack of planning | 10 |
| Poor BM in organization | 9 |
| Need for champions to promote the MEA | 8 |
| Incorrect people in BM team | 6 |
| Business case not comprehensive | 3 |
| Importance of change management to promote MEA | 3 |
| Mobile is different to traditional systems | 3 |

*Table 19: Risk MEA final codes*

A more specific explanation of how the data analysis was conducted for each research question now follows.

### 3.7.4 Data analysis for the BM process

A combination of inductive and deductive query was the approach taken to answer the first question posed namely:

***Which process can manage the successful realisation of MEA benefits?***

This inductive/deductive approach described by Fereday and Muir-Cochrane (2008) allows for a theoretical base to inform the starting point of the study while at the same time through an inductive process allowing any new and previously unobserved insights to surface. The benefits process model discussed in chapter 2 was the base from which this question relating to the BM process was investigated, without prohibiting any new findings from emerging by being too rigid. The starting BM process for the first ARC was created from the literature and modified from the findings of the MPCI project. This process was then used as the BM process in ARC1. At various stages during ARC1, the researcher interviewed the research participants regarding their views on how the BM was functioning in the project and these interviews were analysed in HyperResearch. The culmination of ARC1 produced a BM process which was modified and tested in ARC2. Again, at various stages in ARC2, interviews were conducted with the participants and the data was analysed in HyperResearch to understand how the BM process was working and where issues were experienced. The findings of the analysis regarding the BM process as well as the final BM process model will be discussed in a later chapter.

### 3.7.5 Data analysis for the benefits from MEA

The approach taken to answer the second question, which pertains to the benefits to be realised from the use of mobile apps in the insurance industry:

***Which benefits can be realised by an organisation in the short-term insurance industry when utilising MEA?***

Was also a combination of inductive and deductive analysis. Benefits from various types of enterprise applications are well researched (e.g., Davenport, Harris & Cantrell, 2002). While the expected benefits, may be identified in the literature and deductively assessed with specific relation to MEA, it was possible that through an inductive approach, new benefits emerged which are specific to this new type of technology and application within a corporate environment. According to Saunders, Lewis & Thornhill (2009) induction emphasises the understanding of the meanings that people attach to events; it allows for the collection of qualitative data; it allows for a close understanding of the research context, and it is less concerned than a deductive approach with the need to generalise. This implies that the

benefits might be specific to this organisation in this context and were discovered, through the process of collecting and analysing the data.

The original list of benefits and risks identified from the literature were given to the research participants and they were asked to identify whether any of these were recognized in the current project? The participants spoke to the benefits which they identified as being the same as well as ones not in the list. As the benefits emerged from the interview data in each project, they were grouped under the code 'Identifying MEA benefits', and these were added to the benefits template which was created for the start of each cycle to assist with benefit identification. This allowed the template to grow as each benefit surfaced from the data. Meeting minutes for the Agri assessment MEA project were also used as secondary data and also management reporting related to the Agri MEA was analysed for relevant data which could be included in the benefits identification. The secondary data which was used was also coded in HyperResearch and included in the code frequency tables.

The tangible and intangible benefits identified in the literature and listed in chapter 2 informed the first stage of the BM model which identified possible benefits in ARC1. These were the initial benefits which were linked to the use of MEA and formed the theoretical base for benefit identification for the BM process in Figure 4.

### 3.7.6 Data analysis for the risks to benefits realisation

Question three followed a similar approach to that of question two.

***What are the risks that prevent the realisation of the expected benefits of utilising MEA?***

The risks to realising the benefits of MEA use were identified in the literature initially and then, through the process of answering question one and two, which looked at benefit identification and management, further risks were identified. Through a further process of induction, these risks, as well as any others which exist, were identified from interviews. These risks informed the start of risk identification in the BM process model in Figure 4 during ARC1.

### 3.7.7 Data analysis for the adoption of MEA

To answer question four regarding adoption of MEA, quantitative methods were used to analyse the quantitative data which was collected using a survey instrument. A survey

instrument was created from prior adoption of technology studies. This instrument was based on a model (Figure 5) which was used to examine this adoption question. The constructs in the model and their relationships were validated deductively using hypotheses with the survey.

The first step in the data analysis was to test whether the questions in the survey were suitable and reliable to be grouped and averaged, with the purpose of forming one variable that could be used to test the model. Cronbach Alpha was used to test the reliability of the constructs in the model. Cronbach Alpha measures the internal consistency of responses to determine how well the constructs are measuring what it is expected to measure and is indicated by a score between 0 and 1. Great internal consistency is indicated by a coefficient that is close to 1 (Tavakol & Dennick, 2011). Internal consistency describes the extent to which all the items in a test measure the same construct and thereby the inter-relatedness of the items within the test (Tavakol & Dennick, 2011). Validity is concerned with the extent to which an instrument measures what it is intended to measure. Reliability is concerned with the ability of an instrument to measure consistently. Reliability is closely related to validity (Tavakol & Dennick, 2011).

Next, an item reliability test was done to indicate whether a group of questions was testing a single factor and not related to multiple factors or constructs (Keller & Warrack, 2000). Factor analysis established construct validity by determining how well test items were grouped and how the underlying construct influences the number of responses being measured by the variable (DeCoster, 1998). The factor analysis tested for convergent and discriminant validity (Bhattacherjee, 2012). Convergent validity is indicated when there is a loading of 0.6 or more by a single construct for the same factor while discriminant validity is indicated by items having a loading of 0.3 or less for other factors (Bhattacherjee, 2012). A factor loading of 0.6 or higher for construct test items in an exploratory study is considered acceptable for convergent validity (Bhattacherjee, 2012). A factor analysis standard (Keller & Warrack, 2000), varimax normalisation, was used to obtain the results of the factor analysis.

After grouping and averaging the selected questions, bi-variant Spearman correlation tests (non-parametric) were performed to test the main hypotheses following which multiple then stepwise regression was performed to identify the equation that best describes the significant variables of the research adoption model (Seymour, Makanya & Berrange, 2007).

### Experience

Experience has been shown to explain differences in individuals when adopting technology (Hartwick & Barki, 1994). In order to test the moderating effect of Experience on the relationships between Subjective norm and Perceived usefulness, Subjective norm and Symbolic adoption, and Company's willingness to fund and Symbolic adoption, the Hayes (2013) PROCESS model 1 in SPSS was used to test for any effect on these relationships between the dependent variables (perceived usefulness and symbolic adoption) and the independent variables (subjective norm and company's willingness to fund).

## 3.7.8 Quality of Data Analysis

Nielsen (2007) described six criteria which are necessary for AR to be relevant. One of these criteria that of documentation requires that the researcher explains the data collection approach and specifies how data quality was maintained. By explaining the data collection approach in detail, a clear distinction is made between research and consulting (Baskerville & Wood-Harper, 1996). The techniques of collecting data for AR are in-depth interviews, documentary and archive data, observational and ethnographical material, and diary writing (Nielsen, 2007). Pettigrew (1990) made three assumptions about approaching data in AR studies. The data should be collected about the change process in context of change at a more detailed level of analysis; about revealing temporal interconnectedness; and the need to explore context and action (Nielsen, 2007). The indicators of the quality of the data relate to how well the data covers Pettigrew's three assumptions as well as the extent to which the collection techniques have been systematically applied (Nielsen, 2007). In as far as the three assumptions are concerned, the data collected in this study detailed the change process for BM in the 3 MEA projects by examining how the BM process changed from the first to the third project and the resultant process to be followed by future projects. The data collected also examined the interconnectedness of the role-players and their influence on the BM process and how their behaviour and decisions impacted the BM.

Regarding the systematic application of the data collection techniques, in-depth interviews were held at various stages in the AR cycles and these recordings were transcribed and coded, and the detailed results of this coding is specified in this chapter. The documentary data collected was also specified in the data collection section, and this data was analysed and coded in the same manner as the interview data. From a research perspective, it is important

to collect data in AR studies so that other researchers can find the results of the research believable (Nielsen, 2007). The data collection method and analysis was explicitly described in this section which speaks to the data quality criteria required for an AR study.

A second criterion for quality AR is the clear definition of roles and explicating how data was collected by the specific roles assigned in the process (Nielsen, 2007). The researcher in this study was an active participant who created the benefits template and facilitated the identification of benefits and risks with the participants. The researcher interrogated the participants at various stages to understand how the BM process was being implemented and where there were challenges with the process during the AR cycles. Feedback to the participants was facilitated by the researcher, and the data which was of interest to this study was collected and analysed throughout this process.

## 3.8 Summary

This chapter discussed the method used to conduct this study. The Pragmatist nature of the research questions dictated the use of an interventionist research strategy, that being AR. The qualitative data collected through interviews with the various role-players in the three projects used in this study were analysed and coded to determine the BM themes. For the adoption question in the study, a survey instrument was used to collect the qualitative data, and statistical analysis was used to determine the factors which influenced the symbolic adoption of MEA.

The quality of the data strategy in this study was established by explicating how the data was collected and how the analysis was done. This allows for repeatability of the process by other researchers evaluating this study. The transferability of the results was confirmed by referring back to the body of knowledge so that the contribution of these findings could be established and the conditions under which these results can be transferred were established.

# 4. Findings for MPCI MEA

When this study began, the MPCI MEA was about to be given to a pilot group of assessors. It was too late to perform an AR cycle however it was decided by the researcher that this project could form the start of the research being undertaken as the problem being experienced in the organisation, upon which this research was undertaken, namely poor BM, was demonstrated in this project. An assessment of the project was performed to understand how BM was conducted and what lessons were learnt from this project which could inform ARC1.

The analysis of the data collected for this assessment leads to the following themes. The salient themes identified in the data were as follows.

## 4.1 Process used for identifying MPCI MEA benefits

The benefits from the MPCI MEA were only formally identified post-go-live as a requirement to obtain funding for the Agri assessment MEA. The benefits which were reported to the funding committee for the MPCI MEA were;

- *Overtime saving at Admin Office Dec and Jan – R70 000.*
- *No overtime had been worked during the current season processing of the Emergence report (a step in the process), and none was foreseen for the rest of the process (Progress and Yield).*
- *Assessors time/cost saving.*

What was interesting was that a BM process existed in the organisation. However, there was a disconnect between the project team and the project office. The project office believed that the BM process which includes benefit identification was being followed. However, this was clearly not the case. When a participant from the project office was asked who identifies the benefits, the response was;

*"The project people, business people, and business change manager and they put together the business case including the benefits."* (PA1)

However, when the product owner of the MEA was asked the same question, the response showed that no benefit identification took place,

*"I think it's the right way to do it is to formalise it and to look at the benefits before the time and to look at the cost and so on. When we did the MPCI app, it was just an internal project,*

*and if we had written it ourselves, we wouldn't even have bothered thinking of benefits. It was something that the business identified that needs to happen, and we can see the benefits so we would have done it"* (PO1)

She also said'

*"The CIO has asked us for an analysis of the benefits of the MPCI app, they haven't asked for costs he only asked the benefits, and I don't have many sights of them. Like I said there are benefits we can't quantify. I've given him what we have."* (PO1)

What is interesting to note is that the project team recognised the need for better BM in the project also,

*".. at the moment when they are doing a scope definition, I think the business case with the benefits should be identified as part of that. Then the whole planning into releases that the benefits can be added to, but you can decide how you going to break this thing up into pieces."* (DM1)

A reason offered by a participant as to why the disconnect occurred was,

*"You need to know what you doing in terms of benefits. What is happening here, we don't have enough skill in the organisation to build business cases."* (PA1)

Another reason offered why benefits identification did not always take place was,

*"We always look at some of these projects that we know are not going to spurn financial benefit, but it is something we need to do to stay ahead of the competition or to be considered to be competitive and relevant."* (PA1)

The claim was that not all projects required benefits, some projects were just executed through necessity and as such benefit identification was not carried out as a requirement.
A further problem mentioned by a participant was the accuracy of benefit identification,

*"I think the accuracy of what's stated up front is a problem. Obviously, in the beginning, people want the project to happen so they are very optimistic and put a lot of benefits forward."* (PM1)

Benefits in projects were overstated so that projects were approved and funding granted. This exaggeration of benefits leads to poor businesses cases in the organisation and projects.

The danger of not having a holistic view of benefits from the MEA from the start is that if the MEA is changed incrementally to add specific benefits over time, architectural design issues can result in lots of re-work by the developers to add the functionality. This was explained as such;

*"If you do it in increments you might do a lot of increments, and you figure out, 'I've got it wrong' in increment number 2, and everything from number 2 to 19 is now built on that one mistake, and that's a challenge and because it's kind of a 'let's start small, it's good to start small', but it's also bad. If you start small, then you looking at just automating a process that's designed based on a manual process."* (DM1)

## 4.2 Process used for BM for MPCI

On the BM side, it was apparent that no BM existed for this project. The product owner had an idea of what she wanted to achieve with the MEA, but there was no explicit benefit case made, and no benefits were being tracked as stated by her when asked how benefits for the MEA were identified,

*"We realised it could make improvements because we had these bottlenecks for the processing at the Bloemfontein office but we never did a formal study or a formal benefits calculation to see what it would be in Rands and cents. We never did that."* (PO1)

And also,

*"If we can improve our process that will help a lot. Because we have a small IT team, we are used to doing these things a lot less formally. I can definitely see the benefit of formalising the benefits process. "(*PO1)

It was not that no BM process existed in the organisation, it was just not followed or mature as explained,

*"So, the processes existed but the process wasn't mature as such, so it was I suppose if you look at it in terms of maturity mapping, it was at a very basic stage where elements of it existed but it wasn't fully implemented."* (PA1)

And

*"...if you look at the big programmes, we have run spanning tens of millions, those processes have always had solid business cases, but it is the execution of the benefits tracking that wasn't great."* (PA1)

The first learning was that there was a definite need for benefit tracking, as can also be seen from the comment below

*"I think that is actually a good thing because although we feel that the MPCI app justified the development, we can't prove it." (PO1)*

PO1 went on to express her desire for better BM,

*"I think the right way to do it (speaking about BM) is to formalise it and to look at the benefits before the time and to look at the cost and so on."* (PO1)

The lack of benefit identification was also found to have a negative impact on the design of the MEA. This comment highlights this point;

*"...we don't give this enough attention and focus. Whereas for me this is the heart of it and figuring out why we doing this and what to do. And if you don't do that, it may not necessarily be a case that you not going to do it anymore but by following the process of identifying the benefits and how do we realise them, you are actually feeding that into a design. Whereas if you don't do it, your design has a gap between what you want to achieve and what you want to do. Now benefits are actually a way to ensure that your design gives you the outcome that you want."* (DM1)

## 4.3 Lack of benefits measurement and tracking

It was apparent that no benefit tracking was taking place in this MEA project since no benefits had been identified upfront. Therefore, no tracking could take place,

*"Well for the MPCI we did the benefits tracking because we actually did the calculation of the benefits afterwards."* (PO1)

This comment shows that during the life of the project there was no benefit tracking, it was done as a separate exercise after the project was live which defeats the purpose of managing benefits as problems arise. Within the organisation even on large projects, BM and benefits tracking was problematic. This participant from the project office commented,

*"If you look at the big programmes, we have run spanning tens of millions, those processes have always had solid business cases, but it is the execution of the benefits tracking that wasn't great. Now certainly we have realised that that needs to be very solid. In that case, we have the main stakeholders meeting monthly around the table making sure that the benefits are tracked and all of that."* (PA1)

When a participant was asked if benefits are tracked, they responded,

*Only recently after we went live for a steering committee in order the justify the expenditure or to give feedback on what's actually happened, we had to report back these are the benefits and we actually built up, collected some data saying hey we have typically we have 5000 that means on average we saved so much effort, and we constructed that. And recently we could report back to say that's the actual realisation. More towards the end not to justify that expenditure only but to justify further investment in mobile."* (DM1)

This showed that benefit tracking was an after-thought in projects and measurement was not used to make corrective changes during projects for BM but to show project success and obtain further funding. It was done as a once-off exercise and not on-going.

A learning from the MPCI project was that demonstrating benefits is important not only to the organisation but to the users also. Adoption of the MEA was a challenge as there was user resistance and the product owner believed that demonstrating the benefits to the users would have a positive implication:

*"..but if we have benefits and we track that and use that to justify to them (the users) why we are doing it and what the benefits are to them, that would be great. At the moment it's much more what are the benefits to the company?"* (PO1)

## 4.4 Lessons learnt from MPCI MEA

The development of the MPCI MEA resulted in several insights which the participants mentioned during their interviews. Several of these learnings were important to take into the first ARC. There were technical lessons as well as process lessons.

The business process needs to be redesigned for the MEA and not just automated, as was explained below;

*"Regarding the learnings like the process learnings, that's starting to come out now only. For example, the farmer signs it then the assessor signs it regarding their hours that they travelled, the hours that they worked, they get reimbursed for their expense. Now the guy's made a mistake a mistake on one of the fields then after it's been signed now before they pay this guy, the relationship manager wants to change it so now this process is designed to go straight to the system it gets imported. So now they say maybe we need to think of an approval step but now if the farmer has already signed it. And then you do think about it; it now forces you to think about why things are a certain way? Why put the guy's mileage on the form signed by the farmer? You can totally decouple it which means you could change it subsequently before it goes to the i-series and the guy gets paid. Sometimes thought from my side is that stuff is only on the paper now or the pdf and it was on the paper before, and it was on the paper because it was the only way to get the information to the back-office so that they capture it. Now that you are automating it you can pull those things apart, right? So, the farmer doesn't have to sign the mileage, just treat it separately, so there are some process learnings coming out to say maybe we need to tweak the process?"* (DM1)

The lack of project reflection results in lost opportunities for the next project;

*"Opportunities are there for us to learn, but again because we are running, this app is barely in and we already busy doing the next one which means that some of the learnings are lost rather than taking from the one and building it into the next one."* (DM1)

Training of users is critical for successful adoption. This was expressed as follows;

*"The biggest thing is the training because of how we did it. We did the training we trained the area managers. They were supposed to train the assessors because the assessors fall under them. Where we did the training, resistance was much less, and efficiency was a lot higher."* (PO1)

The lesson learnt was that training of the users needed to be better managed, it could not be left up to 3rd parties to train the users, as the lack of sufficient training impacted the adoption success.

## 4.5 Appropriate business process selection

Understanding the manual process which would be automated with the MEA was of critical importance when designing the MEA and defining the benefits. Simply automating a manual process can result in weaknesses in the manual process being replicated in the automated process. The following example demonstrates this point;

"*Just taking a manual process and turning that same process as is into a digital process creates the same faults and you don't get to see the benefits from it being digital. You need to understand where the benefits exist in the digital process before you decide to build it.*" (PO1)

The learning was that when identifying the anticipated benefits from the next MEA that the automated process was designed without the constraints of the existing manual process so that weaknesses were not automatically perpetuated in the MEA.

## 4.6 No MEA Strategy in the Organisation

The data showed that no strategy for using MEA and the benefits which could be derived for the organisation had been considered.

*"I think in some spaces there is a case of a solution looking for a problem. Because there is pressure coming from the competition because they have an app out, so we need an app. Then the business case is not driving the project."* (DM1)

*".. sometimes you have a strategy but nothing is happening on the ground. It's a solution looking for problems. I think it's you know, what is it not happening in InsureUs, why are we not looking broadly, probably because it's not top down, it's bottom up."* (DM1)

The participant believed that MEA were being developed for the wrong reasons such as competitive pressure rather than sound business cases with benefits which aligned to strategic goals. Business owners in the organisation were requesting MEA to be developed for benefits which they believed would be realised however they were not necessarily strategically aligned to the organisation.

## 4.7 Benefits not tracked for small projects

The analysis of the data showed that BM was not a priority for the smaller projects in the organisation. MEA were considered to be small projects. Therefore, the BM was lacking. This was demonstrated by the following comments;

*"Projects under a million we say you need a lighter set of governance over that. For different projects depending on the level, there will be more rigour required the higher the cost of the project."* (BM1)

This explained why there was no attention on this project from the project office. The organisation was less concerned with smaller projects, so BM was ignored in the MPCI project.

## 4.8 BM must be communicated

It was suggested by a participant that BM needed to be owned by all role-players including the developers. He saw the following result of the team participating in BM;

*"The other thing where the benefits, the whole realisation, planning can improve is by sharing that throughout the team. At the moment it's an exercise to get money and once you got the money you say development team go off and do it you got the money now. By involving the team, making sure every member of the team knows about the benefits it creates opportunities when you having discussions with the business owner or the product owner when you are designing you saying, so if we call the SA or lead developer starts work on the design, if they knew what the business case is and what's in the business case, that might trigger some ideas."* (DM1)

Another example of how inclusivity could benefit the project was stated by a participant;

*"Assessors aren't jumping up and down because of the apps. Firstly, it reduces their time spent doing assessments, so they get less money. They have to buy tablets because we are not doing that. We are subsidising their data costs in that way we are contributing to their tablets. But if we have benefits and we track that and use that to justify to them of why we are doing it and what the benefits are to them, that would be great. At the moment it's much more what are the benefits to the company."* (PO1)

The importance of these two comments showed that all stakeholders needed to be involved in BM and benefits realisation. It was not an exercise for only a few stakeholders, but its success relied on everyone participating and driving the BM.

## 4.9 Benefit and Risk template for ARC1

The benefits and risks identified in the MPCI MEA project were combined with the benefits and risks found in the literature to create a checklist (Table 20) from which the stakeholders could choose from at the start of ARC1.

| Benefits Category | Description | Confirmed | Evidence from project |
|---|---|---|---|
| Improvement of business process efficiency (agile, adaptive, time, quality, flexibility, cost) | Cost saving because assessments take less time to complete | Y | *"No overtime has been worked during the current season processing" (PO1)* |
| Effectiveness | The ability of the MEA to produce the desired result | N | |
| Convenience | The ease with which the MEA makes the work easier | N | |
| Increased productivity | The ability to do more by using the MEA | N | |
| Improved Knowledge sharing and communication flow | The ability to easily share information and improved communication | N | |
| Removal of unnecessary tasks for business processes | Eliminate the need for back-office capturing | Y | *"Submission of the completed forms will be triggered automatically after signature capture." (BC)* |
| Data accuracy | Increased data accuracy from the MEA | N | |

| | | | |
|---|---|---|---|
| Workforce Management | Less time required to do the task | Y | *"It is estimated that assessors, will be able to save up to 20% of the effort and time which they currently expend to complete an assessment." (BC)* |
| Reduced process lead time | Faster turn-around times in processes | N | |
| New work practices | Improvement in work method | Y | *"On paper things would get lost. There is visibility of work. The documentation doesn't get missing because it all uploaded." (DM)* |
| Improved customer service | Enablement of improved customer service by using the MEA | N | |
| Improved organization control | Better organizational awareness of task and resource management | Y | *"There is also better resource management. Because you doing that through the portal, the assignment of tasks through portal you actually have sight of how many requests you have." (DM)* |
| Improved employee satisfaction | Enablement of improved employee satisfaction | N | |
| **Risks** | | | |
| Lack of understanding of mobile devices | Inexperience with MEA | Y | *"The other issue is that most of the assessors are older people and 50 plus which are not technologically savvy, so they don't want to work with tablets." (PO1)* |

| | | | |
|---|---|---|---|
| User/Employee resistance | Users prefer the previous process | Y | *"Most of the assessors are older people and 50 plus which are not technologically savvy, so they don't want to work with tablets." (PO1)* |
| Technical Challenges | Remote locations have poor network connectivity | Y | *"The other challenge is a big challenge. I suppose we knew it upfront but the data, the quality of the network, speed." (DM1)* |
| Security concerns | Security of company data | N | |
| Performance | Performance issues such as speed of the MEA | N | |
| Strategic risks | Risks which could conflict with strategic goals | N | |
| Organizational culture | Behaviour inside the organization which threatens the MEA | N | |
| Mobile readiness | IS the organization and users ready for using MEA | N | |

*Table 20: Benefit and Risk template from MPCI*

## 4.10 Summary

The assessment of the MPCI MEA project gave several insights into where benefit identification and BM were lacking in the project and the organisation. The benefits and risks which were identified in this project were included in the benefit template which was used for the Agri MEA in ARC1. Likewise, for the risks to benefits realisation. The learnings taken from the MPCI project were used in the AGRI ARC1. Issues such as the importance of training, the need for mobile device support, and the need for project reflection were noted for the Agri project. By assessing the MPCI project it was apparent that no BM process was being

used in the MEA projects. Therefore, the suggested process already discussed earlier could be used to structure the ARC1 BM.

# 5. Description of Action Research Cycle 1

Each of the steps from the BM process will now be discussed as they evolved in ARC1. This cycle took approximately 11 months. The diagnosis stage took a month, the action planning stage took 6 weeks, the intervention stage took around 8 months, and the evaluation and reflection stages took one month. As stated in the method section, the seven criteria for ensuring rigour in an AR study as described by Davison et al. (2004) were adhered to in this study. These criteria will be addressed during each of the steps.

## 5.1 Role and agreement

The researcher only started ARC1 once development was underway for the Agri assessment MEA. The researcher was part of the development team responsible for developing the MEA, therefore, having access to the various role-players which allowed for data collection and active participation as an observer.

### 5.1.1 Research questions for ARC 1

Cycle 1 undertook to answer the following research questions;

1. ***Which process can manage the successful realisation of MEA benefits?***
2. ***Which benefits can be realised by an organisation in the short-term insurance industry when utilising MEA?***
3. ***What are the risks that prevent the realisation of the expected benefits of utilising MEA?***

The primary question set out to determine and refine a process which would identify and manage the benefits from the use of the Agri MEA. As part of the process, the benefits and the risks of this MEA were identified in this ARC.

It was agreed with the product owner and the development manager that there would be a retrospective analysis done for the diagnosis and action planning stages as limited processes had been followed for the first MEA project and that had been repeated when the Agri assessment MEA project was started. Because the MEA was still in development, it was possible to carry out the action planning and intervention steps before the planned go-live date.

### 5.1.2 Confirmation of criteria for RCA

The criteria for researcher-client agreement (RCA) defined by Davison et al. (2004) are listed in Table 21 with the corresponding answer from this study.

| Criteria | Response |
|---|---|
| Did both the researcher and the client agree that CAR was the appropriate approach for the organisational situation? | Yes |
| Was the focus of the research project specified clearly and explicitly? | The focus was to create a BM process for MEA projects that identified and realised the benefits of the MEA |
| Did the client make an explicit commitment to the project? | Yes |
| Were the roles and responsibilities of the researcher and client organisation members specified explicitly? | The researcher is an employee of the organisation but not directly involved in the project. The organisation members on this project each had specific roles and responsibilities for the BM process. |
| Were the project objectives and evaluation measures specified explicitly? | The objective was to define a BM process specifically for MEA projects in the organisation. |
| Where the data collection and analysis methods specified explicitly? | Yes - Primary data collected through interviews. Meeting minutes and the business case was included as secondary data |

*Table 21: Criteria for RCA*

## 5.2 Diagnosis stage (Identifying & Structuring benefits)

The diagnosis started with the recognition (and confirmation from the MPCI project) that BM was an issue that needed to be resolved when building and deploying MEA in the organisation. The CIO had complained that adoption was low and he wanted to see the business case from the MPCI MEA project as he believed benefits were not being realised from the funds that were spent on producing the MEA. The researcher conducted an independent diagnosis of the organisation situation which met criteria 2 of the Davison et al. (2004) list. According to Davison et al. (2012), it is necessary for the researcher to identify the appropriate metrics and measures of organisational processes and performance during this stage. This is done so that an objective evaluation can be done on the outcomes of the change intervention.

Based on the findings from the MPCI project, already discussed, it was obvious that no formal BM process existed for MEA projects. For a start, the identification of benefits to be derived from the MEA was informal and left to the product owner to define. This casual approach to benefit identification needed to be enhanced so that a more robust business case could be created and so that benefits had targets to achieve. The product owner explained how she had justified the project;

*"So, there were only two benefits to this, and the one is saving to the assessors' costs, and the other is the saving on the processing costs in Bloemfontein. That is what we have, and that is what we used to justify why we should go ahead with this."* (PO1)

There was no formal BM initially in the project when the researcher joined. There was an understanding that benefits should be tracked and should happen but it was informal. This can be seen from this comment,

*"We don't have specific formal milestones, but we will look at it as we go along to determine, are we meeting those goals that we set up before the time and then we will talk to the assessors and the area managers to track the usefulness of the app. The intangible benefits."* (BCM1)

Not only were benefits not being identified and tracked, but the process followed to do this was absent. The project was being managed by the product owner who was working exclusively with the development manager responsible for building the MEA. There was a business change manager involved but not actively, only from a financial perspective. No stakeholders had been identified for the BM, to delegate BM responsibilities to, and establish how the BM process would work. Almost no governance existed for the project because it was self-funded.

Because there were very few benefits identified for the project, measurement for benefit tracking and success criteria were non-existent. It is important to set targets against which benefits can be measured. Without targets, no measurement can take place, and it is not possible to assess how a project is doing.

### 5.2.1 Understanding the existing BM process

As already mentioned, when this research started, the development of the Agri app had already begun. Initial funding had been granted by the project portfolio committee based on

the understanding that a comprehensive business plan would be forthcoming and additional funding would be obtained once the committee was satisfied that there were sufficient benefits to this project. Individual interviews were held with each of the role players during this phase.

The business was forced to follow a more formalised approach to BM for the Agri MEA in comparison to the MPCI project to get funds for the project. According to the product owner,

*"Why we actually followed the process is that we had to apply for funding. The first app was done with our own money and money from other projects. The big reason we are now doing it the formal way is that we have to apply for funding. But the CIO has asked us for an analysis of the benefits of the MPCI app, they haven't asked for costs he only asked the benefits, and I don't have many sights of them. Like I said there are benefits we can't quantify."* (PO1)

This sentiment was shared by another manager:

*"At a point in time the whole development and implementation of mobile apps, there wasn't a recognition that BM was needed. Now that it's become more mainstream, now we need to formalise it because if we don't, we are not going to get the benefits."* (PA1)

A problem identified in the organisation was the disconnect between the perception of the project office surrounding the BM process being followed in all projects versus the de facto situation. According to the head of the project office, she believed a robust BM process existed, but she then admitted that it was only done for large initiatives:

*"Yes, we do have a process, and for big strategic initiatives I think we are relatively good compared to other companies." (PM1)*

She did go on to admit though that the mobile space was new and irregular in the organisation:

*"In the mobile space, you are going to explore. It is a bit of investment in innovation and mobility which I don't know how it's difficult to quantify that." (PM1)*

The ambiguity of this comment highlighted the BM issue regarding MEA. There was an acknowledgement that mobile is new and uncertain and not regulated by the established BM process in the company yet the CIO was demanding benefits realisation and reporting on the benefits which were not a serious consideration for the project office.

It was clear from the diagnosis that several problems existed:

1. No formal BM process was being followed.
2. Benefit identification was superficially done with no consideration for intangible benefits for the Agri MEA.
3. The risks that were identified in the MPCI MEA project were not being addressed and mitigated in the Agri assessment project.

The BM process which was used in ARC1 to address this lack of a formal process which had previously existed is shown in *Figure 7*.

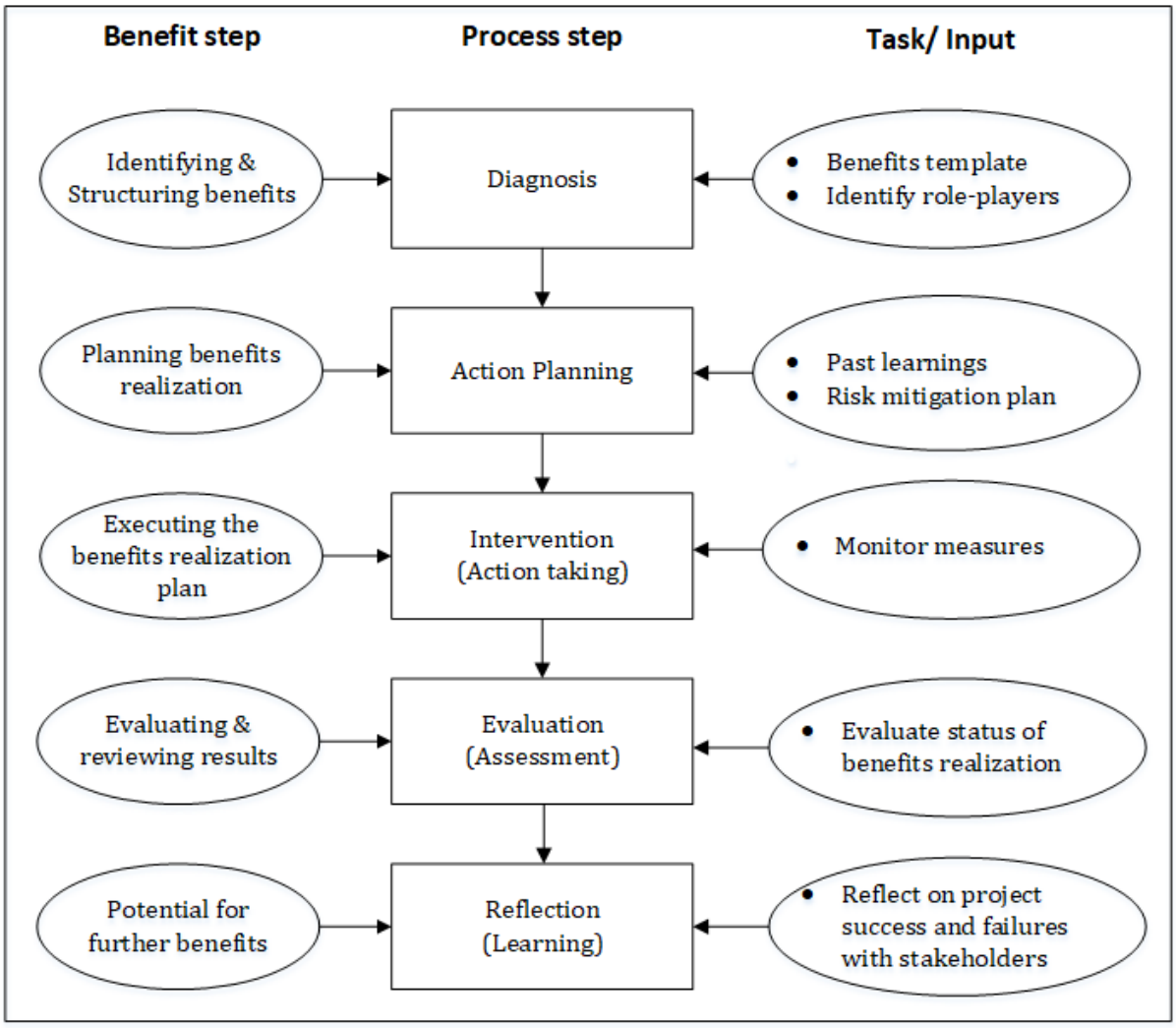


*Figure 7: BM process for ARC1*

### 5.2.2 Benefit Identification

Using the process model as the guide as specified by Davison et al., (2012), this step required the identification and structuring of the benefits. It was necessary to have a formal list of benefits along with their metrics which would be tracked on an on-going basis. There was an

agreement between the product owner and the researcher that the benefits identification needed to be inclusive. The following view was expressed,

*"…what I would like is actually for everyone to give input and in the end, for everyone to say look these are the benefits. That's the only way you get buy-in, is for the assessors also to see the benefits. Every stakeholder in every step of the process, that's actually how you should do it. Let everyone decide the benefits and if it's worth it and what's their input in the process."* (DM1)

It was at this stage that the benefit template compiled from the literature and the MPCI MEA was introduced to the project. The advantage of having a benefits template during this stage was illustrated with the following response:

*"If you have an understanding what does mobility give you regarding a basic set of benefits, you can actually go to your business and say which areas of the business typically would this be valuable in?"* (DM1)

*"You can go through your organogram and your processes. So everywhere you have someone going out of the office, it's when I survey a risk when I assess claims or the relationship manager visits the broker, you can almost create some kind of opportunity map to say here's the biggest opportunity…. I think that would be very very valuable."* (DM1)

### 5.2.3 Inclusion of intangible benefits

The stakeholders were encouraged to identify intangible benefits which they either recognised from the MPCI MEA project or other potential intangible benefits which might be derived from the use of the Agri MEA. Identifying intangible benefits made the business case for the MEA stronger. The absence of intangible benefits was mentioned by BCM1,

*"I think we are so fixated on writing a business case with financial benefits that you tend to leave the non-tangible benefits behind and there must be ways to measure that better."* (BCM1)

An example of an intangible benefit identified from the use of the MPCI MEA was described as such:

*"What we can't see is the improvement that it brought along for the farmers. What happens is if we process the Emergence report which is the first report of the process, he gets*

*financing. He gets additional financing to carry on his farming practice. If we are late with the report, then he doesn't get his finance. That's not quantifiable; we don't know what happens out there. We can only measure what we are doing internally. There are benefits that we know are happening but we can't quantify."* (PO1)

Using the benefit template (Table 20) as a guide, the benefits identified by the stakeholder group for the Agri MEA are listed in Table 22.

| **Benefits** | **Description** | **Evidence** |
|---|---|---|
| Eliminating double capture | Eliminate the need for back-office capturing | *"They worked out they would get some benefits, no more back-office capture, the paper won't get lost, and and and and." (PM1)* |
| Data supports adjacent processes | Data from one process can be used to support other processes, e.g. Risk assessment could be used for quoting | *"You can now use this data downstream in your sales cycle. Although it is claims, you can use this data for other things." (DM1)* |
| User productivity | No need to do lookups of values and rates. Automated calculations | *"Let's call it productivity. So automated calculations are examples of this. All the lookups." (PO1)* |
| Improved work task distribution | Assignment of work to external assessors | *"The other benefit is if I know based on the claims that have been registered the assessment needs to be done on this part of the map, if you now that the other ones haven't been assigned are in the vicinity, I'm going to give the assignment to this* |

| | | |
|---|---|---|
| | | *guy because he can do it at the same time." (DM1)* |
| Documentation control | All documents uploaded from the app to the back-end | *"The documentation doesn't go missing because it is all uploaded." (PO1)* |
| Improved task visibility | View of outstanding work/assessments | *"Real-time tracking of assigned assessment tasks." (Business case)* |
| Improved data | Better underwriting of risks<br>Improved customer data allows better risk management<br>Accuracy of claims calculations<br>Location data allows better risk management | *"I see there is better customer data. So, for example, the fact that we now have better location data about the farm." (DM1)*<br><br>*"If we have better risk data it helps us with better underwriting." (DM1)*<br><br>*"They will no longer have to perform the various damage calculations manually." (BC)*<br><br>*"Reduction in the total claims paid through greater accuracy in damage calculations." (Business case)*<br><br>*"If the quality of the data goes up the exposure management goes up. You can price your risk correctly." (BCM1)* |
| Improved claims processing | Data accuracy allows improved claims handling | *"Processing of claims. It is improved because it is more accurate." (DM1)* |
| Process efficiency | Faster assignment of tasks to assessors | *"Faster assigning of assessments is a big benefit." (PO1)* |

*Table 22: Initial benefits identified for Agri MEA*

*Appendix 4* shows the financial benefits which were calculated for the Agri MEA by the product owner. The financial data in the projects was not focused on as part of this study so *Appendix 4* details the financials for the interest of the reader.

## 5.3 Action Planning Phase (Planning benefits realisation)

The 3rd criteria for ensuring the rigour of the CAR process is that the planned actions were based explicitly on the results of the diagnosis. The intervention needed also to be informed by a theoretical perspective that indicated prescriptively how the planned changes would address the problem and improve the organisational situation (Davison et al., 2012). Davison et al. (2012) also believe that the desired end-state should be formally included in this phase to build rigour into the CAR cycle. To this end, the goal of this cycle was to have the project follow each of the steps in the model so that BM was entrenched in the project. The goal of the intervention was to formalise BM gates or checkpoints with the specified purposes assigned to each checkpoint related to BM. The stakeholders needed to take responsibility for delivering all of the benefits by tracking the metrics and making necessary adjustments as and when they were needed. Also, the BM process needed to allow for further benefits to become apparent and include those in the business case as the project progressed. The first step was to formalise the BM using the steps in the proposed process model and identify the benefits. The role-players responsible for the BM process needed to be identified and assigned roles and responsibilities.

### 5.3.1 Defining the BM process

The BM roles of each of the stakeholders was decided. A steering committee was established consisting of the stakeholders and decision-makers in this project. The committee consisted of the role-players in Table 23.

| **Role** | **Seniority** | **Role in BM (RACI)** | **Duration** | **Function** |
|---|---|---|---|---|
| Chief Info Officer | Executive | Informed | Perm | Approve financial decisions |
| Development manager | Senior | Responsible | Perm | Delivery of MEA |

| | | | | |
|---|---|---|---|---|
| Product owner | Senior | Responsible | Perm | Approve decisions |
| Project Manager | Intermediate | Accountable | Perm | Delivery of MEA |
| Business Change Manager | Senior | Responsible | Perm | Manage delivery of MEA |
| Project Office Head | Senior | Accountable | Perm | Approve financial decisions and governance |
| Head of Digital | Senior | Accountable | Perm | Approve decisions |

*Table 23: Stakeholders and RACI for Agri MEA*

It was agreed that quarterly steering committee meetings would be held to monitor benefits and deal with any issues that arose from the project. The day-to-day management of the project was the responsibility of the project manager, and the decisions which needed to be made between the steering committee meetings would be made by the product owner. The project office assigned a project manager whose responsibility it was to collect data necessary for monthly reporting of the status of the metrics being measured.

Next, the governance regarding when the group would assemble for meetings was established. It was agreed weekly teleconference meetings would take place because the stakeholders were located in different parts of the country to get updated on how the project was proceeding and deal with any issues arising from the project. They were specifically tasked to manage the benefits. This group was tasked with identifying the benefits, the metrics to be measured, the target setting for the benefits, and the risk mitigations.

### 5.3.2 Benefit Measurement

The measures against which these benefits would be tracked was decided so that the benefits had targets to achieve (Table 24). The only tangible measure was the cost savings which were expected from the MEA. The rest of the benefits were intangible and difficult to measure.

| **Benefit Category** | **Benefit** |
|---|---|
| **Cost Saving** | |
| *Performing assessment* | Time-saving of < 10% of total assessment time |
| | Will increase to < 20% when assessors more proficient at using the app |

| | |
|---|---|
| | R500 000 in season 1 |
| | R1 000 000 per season |
| *Administration saving* | Eliminate double capture R800 000 per year |
| | No lost or incorrect information |
| | No need to manually verify assessment calculations. All table lookups in app |
| | Capturing and revision functions of clerks changed to a control function. Redeployment of staff to be used in business expansion |
| **Accuracy** | Assessment calculation accuracy reducing re-work and repeat visits to client to amend assessed percentage damage |
| | Allowed for calculations per test sample which were only possible with the MEA |
| **GIS and Images** | GPS coordinates obtained for each land assessed allowing for correct identification of risks per land |
| | Images at each test site are available for verification during inspections and in case of disputes. Record of historical view. |
| | Displaying a map of the farm and lands enables assessors to select tests that are representative of the damage on the farm |

*Table 24: Agri benefits with measures*

It is important to note that the measures which were decided on by the committee were not aligned with the benefits which they identified in Table 22. This oversight in itself was an important observation as it highlighted a weakness in the BM process where benefits was identified but no plan to measure and track them were put in place.

### 5.3.3 Risk Mitigation

The 3rd issue identified during the diagnosis phase which required action was the identification of the risks to the benefits being realised which were identified from the literature and the MPCI project. The issues which surfaced from the MPCI project are listed in Table 25.

| **Risks** | **Remedial Action** |
|---|---|
| Lack of understanding of mobile devices | Training by regional managers |
| User/Employee resistance | Train relationship managers who train users<br><br>Provide devices to users |

| | |
|---|---|
| Business process not efficient | Redesign app process |
| Technical Challenges | Slow connectivity and security issues |
| Security Concerns | Purchase 3rd party tool to manage data on the devices |
| Performance | Connectivity issues and slow connections in remote areas |
| Strategic risks | The lack of direction from senior executives for MEA was an on-going discussion |
| Organisational culture | Knowledge sharing in the organisation |
| Mobile readiness | Training of users |

*Table 25: Risks identified in Agri MEA*

These issues were discussed by the stakeholders and steps were noted to address each possible risk. The agreement by the stakeholders on the actions to be taken in the intervention step is stipulated by Davison et al. (2004) as a way of fulfilling the essence of CAR which is a change to the current problem situation being studied. All parties in the research should agree on how the problem situation in the organisation will be changed, and these changes will be implemented in the next step of the process.

To address the risks identified in Table 25, the mitigations to these risks were addressed as follows:

### 5.3.4 Tablet device compensation

User adoption was affected negatively in the MPCI project because assessors had to purchase their own tablet devices. To deal with the issue, the product owner came up with a compensation model for the purchase of devices and data required to use the MEA. This model had been implemented for the MPCI project and extended to the Agri assessment MEA project.

### 5.3.5 Business Process Re-design

For the second MEA, a learning regarding the flow of the business process which would be used for the Agri MEA was acted on. Whereas the MPCI MEA simply automated the existing process which was already there, the process for the Ari MEA was completely redesigned so as not to include existing weaknesses into the new process. This is explained below;

*"There are a lot of technical learnings in the sense that what do you want to do better? When we started with the second app, we wanted to do the architecture right. In the MPCI app, we picked up what was there. There was a process, an MPCI report gets sent as an email to the user, and they open it up, and then they initiate a report based on an email, and that's not a good way of managing the workflow because things can get lost. When we did the assessments, we said we definitely don't want to do that. We want to push it from the iSeries to the portal then from the portal it is assigned in the portal, and then it goes through. So, from a business process perspective, there is definitely a lot of learnings, not so many learnings but difference in wanting to do it right and better relative to the existing system."* (DM1)

### 5.3.6 Training Issues

The MPCI project had demonstrated that where adequate training was provided to the users, user satisfaction and adoption improved. The users were less inclined to resist the MEA as they understood the relevance to their job and how it could benefit their productivity. A plan was put in place for each region of the country to have training sessions for the assessors to mitigate this training problem which arose in the MPCI project.

**Confirmation of criteria for the CAR process**

To evaluate this phase for rigour and validity, the criteria for a cyclical process model described by Davison et al. (2004) are listed in Table 26 along with their responses from this phase.

| Criteria | Response |
|---|---|
| Did the project follow the cyclical process model or justify any deviation from it? | The CAR process to be used in this research was defined (*Figure 7*) |
| Did the researcher conduct an independent diagnosis of the organisational situation? | Yes |
| Were the planned actions based explicitly on the results of the diagnosis? | Yes |

*Table 26: Criteria for CAR*

## 5.4 Intervention (Executing the benefits realisation plan)

Quarterly meetings were held with the steering committee, and weekly teleconference meetings were held with the Product Owner, the Development manager and development team. The biggest challenge with the project was scope creep which caused cost over-runs as well as go-live delays. This resulted in the stakeholders losing focus on the project as it continued for much longer than was expected. It was also apparent that the stakeholders were not completely committed to the process which had been established. During the project, an important business stakeholder left who was managing the business case, and she was replaced by someone with less focus. As you can see from the comment below, her focus was not entirely this project.

*"Irma was moving over to Abalon, so I just came in half way to try assist them. It was more at distance because DM1 and the team used to go to Bloem plus I was managing other projects. Although I wasn't always involved, I was always copied in the mails. It was more from a budgeting perspective. I would check in with PO1. They were working on the assessment app, and I was helping on the steering committee and (the executive head) wanted to know what is happening? I would check in with PO1 to find out how is the usage, are they using it? How are the guys using the forms and I tried to help out with the current process manually, 'let's get an estimate of how much time would it take them as opposed to now using the app?' So, not very extensive but we tried to put in some kind of benefits management, but I can't say it was consistent."* (PM1)

This explained why BM was not happening as had been planned in the planning stage; the stakeholders were not as committed as had been anticipated by the researcher.

Another issue with the BM process was that no interventions were being done based on the benefits tracking. When issues were identified, it was more to report on them than actually remedying the problem.

*"It was more just reporting than rather going to you know great lengths to see what we can do to rectify or look at the gaps and see where are we missing it? But more from a reporting perspective."* (PM1)

This point again highlighted the lack of commitment to the BM process that was being followed in the cycle.

**Confirmation of Criteria for the Principle of Change through Action**

The criteria used to assess the rigour of the process used for the action taking phase of the cycle are listed in Table 27 along with their confirmation.

| Criteria | Response |
|---|---|
| Were both the researcher and client motivated to improve the situation? | The stakeholders believed the situation needed to change but did not take the necessary actions to create the change. There was a disconnect between what they wanted and what they actually did. |
| Were the problem and its hypothesised causes specified as a result of the diagnosis? | Yes |
| Were the planned actions designed to address the hypothesised causes? | Yes |
| Did the client approve the planned actions before they were implemented? | Yes |
| Was the organisation situation assessed before and after the intervention? | Yes |

*Table 27: Criteria for Principle of change through action*

## 5.5 Evaluation (Evaluating & reviewing results)

After the MEA had been live for several months, the researcher interviewed the product owner to get an update on how the MEA was performing. She was asked how feedback on the app from the users was being dealt with? Because the project for the MEA was no longer in existence as the MEA was in production, there was no longer a team driving the benefits and monitoring the benefits realisation. This was her response:

*"We have a list of enhancements and changes that the area managers have collected. They've gone to the regional underwriters. They've got their wish-list. We are going to have to sit and by we, I mean me and the IT team and the crop IT team and decide what we are going to do. We have the wish-list, and we will have to decide based on the benefits and time taken to do it. I don't know how formal that is but I mean that's our process now."* (PO1)

It was apparent to the researcher that once the MEA was live, the urgency for benefit measurement and tracking disappeared. The steering committee was disbanded, and benefits

realisation was left up to the product owner to manage and even then, it was not a priority for her. The actions which were implemented had varying degrees of success. Benefits were managed only to justify additional funding requirements. If there were no further funding needs then benefits tracking and management were ignored or neglected. When asked who was measuring the benefits throughout the project this was the response:

*"It would happen as we have a steering committee meeting coming up so let's quickly get the project manager to put together a slide on benefits and the business to give her some stuff. She prepares the slide, and there you go. It wasn't an on-going tracking." (DM1)*

It is not uncommon for the evaluation to reveal that not all of the planned actions were implemented (Davison et al., 2012). According to Davison et al. (2012), this occurs when stakeholder endorsement of the planned actions was not achieved. In this case, this was not true. The stakeholders had agreed to implement the plan however during the execution of the plan they stopped participating as had been agreed.

## 5.6 Reflection (Potential further benefits)

On reflection of ARC1 the researcher noted that while the process for BM was more formal than was the case in the first MEA project, it was still happening without much commitment from the stakeholders. The need to acquire funding was the principal driver in following any formal process to manage benefits.

It was believed that for smaller projects, as long as the capital outlay was not too excessive, BM was too laborious:

*"The effort to define benefits vs the effort sometimes is just not worth it. The time it takes to sit around and discuss benefits, how can we? Well we know building it is the right thing to do because industry trends suggest it. As long as the investment doesn't kind of get out of hand"* (PM1)

This same interviewee went on to say,

"*We are rigorous at the big projects but we not rigorous at the small initiatives."* (PM1)

This lack of importance placed on smaller initiatives such as developing MEA led to the BM process not receiving the required attention in the organisation. A further reason for BM not taking a priority in this MEA project was that Insure managed benefits on a project basis rather

than as an on-going exercise. This implied that once the project was closed, the focus was shifted from the MEA to the next project and managing benefits became less important unless there was going to be a request for funding for changes or enhancements. Davison et al. (2012) believe that the researcher needs to ask whether the selected theory applies to the organisational context when considering current organisational practices during the reflection stage and based on the outcomes? On reflection of this cycle, the researcher began to question the feasibility of this process model in these types of projects in this organisation. While the stakeholder agreed upfront and supported the proposed intervention, the desired outcome was not achieved because of their lack of commitment. The researcher decided to try the process in another cycle to determine whether it was specifically this project that had this undesired outcome or whether it was a general problem in the organisation.

The loss of attention for the BM was also due to constant delays in the project. The product owner wanted a completed product to be launched, and this meant the use of the MEA and subsequent benefits realisation was pushed out countless times. This led to stakeholder fatigue, and they lost interest. This was explained as follows,

*"For them, it's too long. The process is too long from when they start investing to when they start seeing benefits. So, you need to have shorter turn-around. Ideally, you would break this into shorter iterations so you can still see benefits coming through, you can see an upward curve of benefits. That's where in Agri crop claims that's one of the biggest challenges. You are never getting out there because you haven't got the full set of functionalities available."* (DM1)

*"So maybe we should be breaking up things in smaller pieces and delivering that sooner, so you are delivering benefits while building the next thing." (DM1)*

It was obvious at the end of ARC1 that a general lack of ownership of benefits and the BM process to realise the benefits persisted in the organisation. This could be seen from this comment made:

*"We often put together a basic financial business case with an NPV and IRR but where the problem comes in is the business wants it done as a tick box exercise as opposed to let's go through it and own it." (PM1)*

There was still a need to get the stakeholders of the MEA to take BM more seriously than had been the case in this cycle.

**Confirmation of Criteria for the Principle of Learning through Reflection**

The explicit specification of learning is critical in CAR given the researcher's responsibility to both the research community and the organisational clients. (Davison et al., 2004). Confirmation of the criteria for assessing rigour in the reflection phase of the ARC is described in Table 28.

| Criteria | Response |
|---|---|
| Did the researcher provide progress reports to the client and organisation members? | Feedback on progress was given to the product owner and the development manager |
| Did both the researcher and the client reflect upon the outcomes of the project? | Yes, through individual conversations with the product owner and the development manager |
| Were the research activities and outcomes reported clearly and completely? | Yes |
| Were the results considered in terms of implications for further action in this situation? | Yes, in a second MEA ARC |
| Were the results considered in terms of implications for action to be taken in related research domains? | No |
| Were the results considered in terms of implications for the research community (general knowledge, informing/re-informing theory)? | Yes, in improvements in the BM process tested |
| Were the results considered in terms of the general applicability of CAR? | Yes |

*Table 28: Criteria for the principle of Learning through reflection*

## 5.7 Summary of ARC1

The importance of BM in this AR cycle, while being recognised by all role-players as being important, was not fully committed to by the stakeholders. The main focus of the project was the funds used to build the MEA and not necessarily what benefits those funds realised. Benefits were tracked and reported on but only as a means to obtain more funding, not as the primary requirement from the MEA. The use of the benefits template was successful in building the business case, and the identification of risks and including those in a template helped with defining mitigating actions to prevent issues. The learnings taken from this project were used in ARC2, and that in itself was an improvement in the process because before ARC1, no prior learnings were used in projects which followed.

## 5.8 Resultant Benefits & Risks Templates

The final benefits identified in ARC1 for the Agri MEA are listed in *Table 29*. The only difference between *Table 22* and *Table 29* is the additional benefit of reusing data for other processes.

| **Benefits** | |
|---|---|
| Eliminating double capture | Eliminate the need for back-office capturing |
| Data supports adjacent processes | Data from one process can be used to support other processes |
| User productivity | No need to do lookups of values and rates. Automated calculations |
| Improved work task distribution | Assignment of work to external assessors |
| Documentation control | All documents uploaded |
| Improved task visibility | View of outstanding work enabling improved planning |
| Efficiency in lower cost | More efficient distribution of assessments between assessors |
| Improved data | Better underwriting of risks<br>Improved customer data allows better risk management<br>Accuracy of claims calculations<br>Location data allows better risk management |
| Improved claims processing | Data accuracy allows improved claims handling |
| **Reuse of data** | **Data from one process can be used downstream.**<br>**Assessment data used for quoting process** |

| | |
|---|---|
| Process efficiency | Immediate feedback to clients, faster assignment of tasks to assessors |

*Table 29: Benefits of Agri MEA*

The risks which were identified to benefits realisation in ARC1 are listed in Table 30. The additions to the risks (in bold) show the changes which were added. The risks which were included in Table 25 which did not materialise have been excluded, and mitigations which addressed the risks which worked well in ARC1 have been included. These risks were used in ARC2.

| **Risks** | **Mitigation** |
|---|---|
| **Wrong devices** | **Be prescriptive of the device specifications which support the MEA** |
| Poor user experience | User involvement in the design |
| Lack of training | Compulsory user training before getting to use the app |
| User resistance | **Make app compulsory**<br>**Remove alternative methods of working**<br>Improve user understanding of the value of the MEA with training<br>**Make use of product champions to promote the MEA** |
| **Complexity of the MEA** | **Adequate Training** |
| Complexity of security requirements | 3rd party applications to manage security |

*Table 30: Agri MEA Risks to benefits realisation*

# 6. Description of Action Research Cycle 2

This section presents the description of the second AR cycle. This cycle took place over a period of 14 months and overlapped with ARC1 cycles in that when the researcher started this study, the Agri MEA was being developed, and the ARC2 was in the diagnosis phase. The diagnosis and action planning stages took one month. The intervention stage took just under 1 year to complete. The evaluation and reflection stages took approximately one month. The MEA was released to the users 8 months after the project started and 5 months into the intervention stage. This section will discuss each of the phases of the CAR process from the second cycle.

The primary method of data collection was interviews with several role players involved with the creation of the MEA. The business owner of the Risk business who initiated the request for the MEA, the development manager who built the MEA, the business change manager responsible for funding and the head of the project office at the organisation. Also included in the interviews were participants from the project office that could share insights into how BM was managed in the organisation.

## 6.1 Role and agreement

The researcher started the research as the project was being initiated. Some preliminary meetings to discuss the requirements had taken place but there was no formal BM process defined. The researcher attended meetings and had access to the stakeholders in the project so that interviews could be conducted and the researcher's input could be absorbed into the project at various stages in the ARC. The researcher was also given access to the minutes of meetings which he wasn't invited to. The stakeholders welcomed the research which sought to define a BM process for the entire organisation for MEA projects.

**Research questions for ARC 2**

There was no need to modify the research questions based on the first cycle. The process for identifying and managing benefits from the use of the MEA was still being refined in this cycle. The benefits and risks identified in the first cycle were included in the benefit template used as a starting point for benefits identification in this second cycle as were the risks to benefits realisation from ARC1.

1. ***Which process can manage the successful realisation of MEA benefits?***

2. ***Which benefits can be realised by an organisation in the short-term insurance industry when utilising MEA?***
3. ***What are the risks that prevent the realisation of the expected benefits of utilising MEA?***

## 6.2 Diagnosis Phase (Identifying and structuring benefits)

The BM process had not been followed as the researcher had intended in ARC1. There was still poor benefits identification; the stakeholders were not fulfilling their responsibilities and poor benefits tracking continued to prevail. Weaknesses in the process were addressed in a second cycle. The refined BM process which was used in ARC2 is showed in Figure 8.

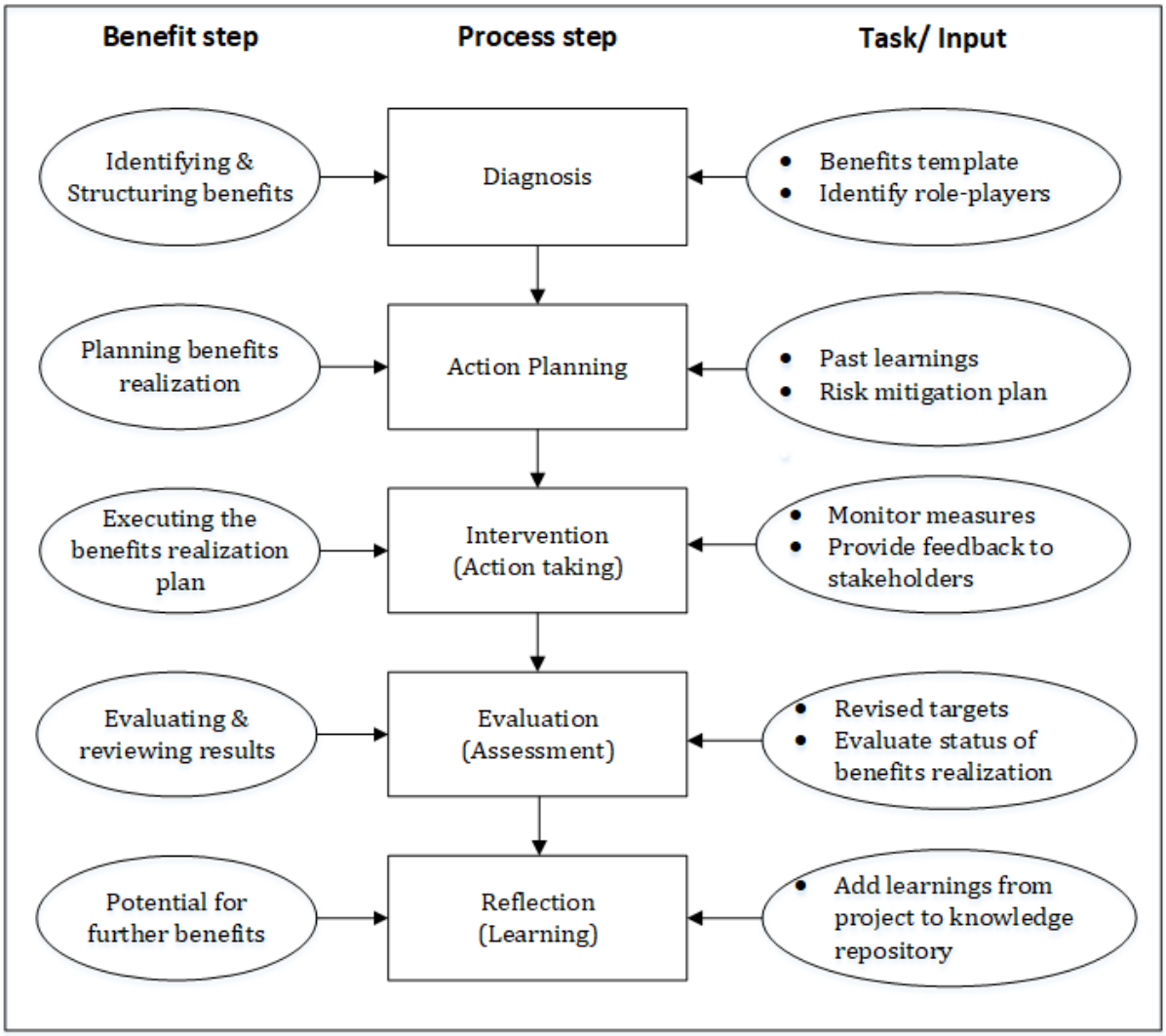


*Figure 8: BM process for ARC2*

The problem of poor BM in the MEA projects was still the problem situation which the researcher was attempting to resolve in the organisation.

The benefits template from ARC1 was used as a basis for starting the benefit identification in ARC2 and enhanced with benefits identified for the Risk MEA. The benefits specific to the Risk MEA are listed in Table 31. Also included in the table are the risks which threaten the benefits from being realised. These risks need to be identified so that mitigations can be put in place to prevent the risks from materializing.

| Benefits of MEA | Description | Confirmed | Evidence from project |
|---|---|---|---|
| Improvement of business process efficiency (agile, adaptive, time, quality, flexibility, cost) | Cost saving because assessments take less time to complete | Y | *"The accuracy may mean we pay out less in claims." (DM2)* |
| Effectiveness | The ability to the MEA to produce the desired result | Y | *"we can probably write more policies because we know what risks we are exposed to." (DM2)* |
| Convenience (system and data access) | The ease with which the MEA makes the work easier | Y | *"That is a huge benefit being able to work offline and not have to be connected is a huge benefit." (DM1)* |
| Increased productivity | The ability to do more by using the MEA | Y | *"All brokers doing surveys the same way creates a benchmark against which risk is underwritten." (PM2)* |
| Improved Knowledge sharing and communication flow | The ability to easily share information and improved communication | Y | *"Now yes you can get it on your laptop but with this app, he can sit, and while he is waiting for his meeting, he can send some of his emails." (PO1)* |
| Removal of unnecessary tasks for business processes | Eliminate the need for back-office capturing | Y | *"the obvious one which is nobody needs to recapture anymore because it just gets integrated from the device." (DM1)* |

| | | | |
|---|---|---|---|
| Data accuracy | Increased data accuracy from the MEA | Y | *"It's paper based and the guys drive long distances. The papers get lost. When it eventually gets back to the back office and when they capture it then they say this is not clear on the paper, this date is missing then they have to pick up the phone. So they saw the mobile app as a solution." (DM1)* |
| Workforce Management | Less time required to do the task | Y | *"There is also better resource management. Because you doing that through the portal, the assignment of tasks through the portal you actually have sight of how many requests you have." (PO2)* |
| New work practices | Improvement in how work is done | Y | *"Benefits related to let's call it the adjacent processes for example we are doing the risk assessment but we have an opportunity to feed into the new business process and asking would you like us to quote based on what you've said?" (DM1)* |
| Reduced process lead time | Faster turn-around times in process | Y | *What's happens is if we process the emergence report which is the first report of the process. He gets financing. He gets additional financing to carry on his farming practice. If we are late with the report, then he doesn't get his finance. If that is quantifiable, we don't know* |

| | | | |
|---|---|---|---|
| | | | *what happens out there." (PO1)* |
| Improved customer service | Enablement of improved customer service by using MEA | Y | *"Ability to acquire actions in clauses based on the outcome of the survey." (PO1)* |
| Organisation Control | Better organizational awareness of task and resource management | Y | *"We have a lot of claims because we don't survey most of our risks. The app allows us to understand what we are insuring and we can improve our risk profile with the improved data. This gives the company more control over what we do and don't cover. It is about the control we get from the app now." (DM1)* |
| Improved employee satisfaction | Enablement of improved employee satisfaction | N | |
| Increased sales | Sell more policies | Y | *"We can probably write more policies because we know what risks we are exposed to." (HD)* |
| Professionalism | Improved image of brokers | Y | *"The app gives brokers a more professional image in front of clients." (PM2)* |
| Reports | Ability to generate risk assessment reports for clients | Y | *"They have to give proof of the record of advice, they can prove they advised the client of the cover they need, please sign here that I gave you this advice." (DM1)* |

| | | | |
|---|---|---|---|
| Competitive advantage | Ahead of competitors | Y | *"Nobody else does this like this in South Africa. It has a reputation benefit." (DM2)* |
| **Risks** | **Cause** | **Confirmed** | **Evidence from project** |
| Lack of understanding of mobile devices | Inexperience with MEA | Y | |
| Poor adoption | Users not willing to use MEA | Y | *"It is easy to say adoption is always a challenge. I think it has come to that point where mobile adoption is regarded within enterprises as challenging. And it is challenging but I think you make it harder by not being more organized and I think it's imperative that you organize yourself to give yourself a better chance of succeeding within the context of being voluntary." (DM1)* |
| Poor functional design | The functionality in the MEA is inadequate | Y | *"You need to look at bringing other functionalities in so it all sits as a bundle together, and they can just use the app, they don't have to use app and paper." (DM1)* |
| User/ Employee resistance | Users prefer previous process | Y | *"Some feel they are good in the method they follow and don't see how the app can help"* |
| Technical Challenges | Challenges relating to the use of the MEA | Y | *"Where we had a lot of challenges was the take-on of the app and the user downloading it from the store.* |

| | | | |
|---|---|---|---|
| Security Concerns | Security of company data | Y | *"An enterprise risk to mobility is the security." (DM1)* |
| Performance | Performance issues such as speed of the MEA | N | |
| Strategic risks | Risks which could conflict with strategic goals | N | |
| Organisational culture | Behaviour inside the organization which threatens the MEA | Y | *"We don't have that strong technology culture and digital understanding. You need to build a digital culture in your own people." (DM1)* |
| Mobile readiness | Is the organization and users ready for using MEA | N | |

*Table 31*: Starting Benefits and Risks template for ARC2

## 6.3 Action-Planning Phase (Planning benefits realisation)

The biggest challenge in ARC1 was the lack of attention to the BM process by the identified stakeholders. This cycle addressed the commitment to the BM by each of the stakeholders by establishing monthly steering committee meetings which all stakeholders were mandated to attend. The executive head was requested to be a permanent member on the steering committee so that senior management support was obtained for all decisions made by the group. A permanent project manager was assigned to the project which was not the case in ARC1. It was the role of the project manager to ensure that all stakeholders remained engaged with the project and the BM process. All stakeholders agreed to commit to the BM process and show full support for their required roles and responsibilities.

The second issue addressed in this cycle was the defining of a more comprehensive business case which included a detailed list of benefits which were to be realised by the MEA. A participant had this to say about the benefit identification.

*"I think we also struggle with quantifying the benefits. So, the benefits are there, we just haven't done a good job of quantifying them. I think the process is flawed but that definitely has an impact in when you realise the benefits and what you can count as benefits. But the benefits are there." (BCM1)*

Along with the benefits, potential risks to the benefits being realised were identified per benefit and mitigation steps were proposed to deal with each risk. Also, measurements were defined for the benefits which were stated in the business case. The lessons learned from ARC1 regarding risks were assessed and included in the cycle where appropriate.

**Confirmation of Criteria for the Principle of Change through Action**

The criteria used to assess the rigor of the process used for the action taking phase of the cycle are listed in Table 32 along with their responses.

| Criteria | Response |
|---|---|
| Were both the researcher and client motivated to improve the situation? | Yes |
| Were the problem and its hypothesized causes specified as a result of the diagnosis? | Yes |
| Were the planned actions designed to address the hypothesized causes? | Yes |
| Did the client approve the planned actions before they were implemented? | Yes |
| Was the organisation situation assessed before and after the intervention? | Yes |
| Were the timing and nature of the actions taken clearly and completely documented? | Yes |

*Table 32: ARC2 confirmation of criteria for change through action*

## 6.4 Intervention (Executing the benefits realisation plan)

Table 33 describes the mitigating actions taken to address risks to benefits realisation of this MEA. The risks were identified primarily from ARC1 and addressed in this ARC.

| Risk | Mitigation |
|---|---|
| User community feels excluded from decisions | • Brokers included in design and communication throughout project |

| | |
|---|---|
| | • Broker workshops held throughout the country to test appetite for the MEA and get feedback into the design |
| Different tablet platforms in use | • MEA built for both Android and iOS devices |
| User resistance to using the MEA | • Identify champions that promote the MEA amongst brokers |
| | • Get champions to explain benefits and job relevance to the brokers |
| | • Identify users that are negative about using the app and make extra effort to promote app to them |
| | • Communication channel established to feed-back broker concerns about the use of the MEA to the product owner |
| Limited opportunity to use MEA. Assessments only done at renewal, inception, or policy change. | • Design consideration for future release. Add more functionality to the MEA to make it more job relevant |
| Data in central location. Don't want to have to look in various places for data | • Design consideration – Perceived Ease of Use |
| Functionality requested - voice notes, immediate quote, questions structured per industry | • Design consideration – Perceived Ease of Use |
| Ease of use | • Design consideration – Ease of use |
| | • Usability testing facilitated by external research company |
| Poor change management | • Identify champions to train the brokers and promote the MEA |
| | • Training sessions held for brokers |
| Low adoption | • Assign responsibility to MEA champions to drive adoption targets |

| | |
|---|---|
| | • Campaign to drive adoption |

*Table 33: Risk MEA mitigations to risks*

Some of the interventions taken will now be discussed in further detail to illustrate the interventions which were undertaken in this phase of the ARC.

### 6.4.1 Including the user community

A learning taken from ARC1 was that adoption of the MEA by assessors was negatively influenced because they felt disempowered by the app. To mitigate this issue in ARC2, an external research company was hired to understand how the brokers felt about performing surveys with this MEA. This inclusive approach to developing the MEA was a proactive step taken by the organisation to appease brokers and make them feel that their views had been considered. Furthermore, this step was seen as a mitigation to possible adoption issues if the brokers had not had an input into the design process.

The interventions made during this phase were:

1. Broker workshops were held countrywide with 23 brokers to gain feedback about their requirements for the MEA and how they felt about having the MEA made available for assessments
2. The process which brokers used to do the assessments was investigated to understand when the MEA would be used and how it would be used in the field.
3. There was an investigation into the types of tablet devices the brokers were using so that development of the MEA could be more appropriate.
4. Requirements for the MEA were elicited from the sample of brokers. Some of their requirements were;
    a. Location dependency i.e. Relevant maps from Google maps
    b. All data stored in a central place including notes, photos, voice memos
    c. User friendliness and easy to use.
5. Extra effort was made to include brokers in the pilot phase that had expressed negative sentiment towards the MEA during the broker workshops to make them more enthusiastic about adoption and use.

### 6.4.2 Monitoring benefits

A further intervention which was included in ARC2 which did not happen successfully in ARC1 was the measurement and tracking of benefits. The steering committee of the Risk MEA set targets (Appendix 2) and articulated benefits (Appendix 3) and required monthly reporting on the tracking of the stated benefits and the adoption against the targets to understand the value delivered by the MEA.

### 6.4.3 Service Quality

A support process was implemented to provide user support for the MEA. The Agri MEA had an informal support process, and users were often frustrated because they did not have defined channels from which they could get help with issues. This service quality issue was addressed in ARC2 by defining a process whereby users could contact a helpdesk for technical queries and a survey team was trained to support the MEA for non-technical issues.

### 6.4.4 Piloting the MEA

A learning which came out of the ARC1 was that there was a need for a pilot phase before launching the MEA. In ARC2 it was found that once the users started to use the MEA, there were changes which needed to be made because practical considerations had been missed when designing the app. With a pilot phase, the requirements which were missed will surface, and this creates an opportunity to change the MEA before a full launch to the entire user base. A pilot phase was planned for the Risk MEA to mitigate this problem.

### 6.4.5 Exit of critical stakeholders

During the project, the project manager left the organisation and was not replaced. The product owner also moved to a different area of the business and left a void in her place. This had a significant impact on the on-going BM and commitment of the entire project team. Once these two stakeholders exited, the commitment from most of the other stakeholders faded and the BM process was left to two stakeholders to manage.

## 6.5 Evaluation (Evaluating & reviewing results)

On evaluation of the BM process, issues which hindered the benefits realisation were identified. These issues were:

### 6.5.1 Adoption challenges

One of the challenges faced by this MEA was that of adoption. The measure that was put in place for the number of surveys carried out by a specific date was not achieved during this project. This was said:

*"...mobile adoption is regarded within enterprises as challenging. And it is challenging, but I think you make it harder by not being more organised and I think it's imperative that you organise yourself to give you a better chance of succeeding within the context of it being a voluntary app."* (DM1)

Various insights were uncovered as to why adoption of the Risk MEA was a challenge.

*"it's not so much that the business case is not there and the benefits are not there. You need to take into account the context of the end user and even if there is going to be a benefit in using the app, you need to think about how they use the app and how it is going to be integrated with the other things that they do and how they practically going to do it. So, the business case is there, we quantified the benefits, but the adoption is not there."* (DM1)

This manager went further by describing how the MEA had failed to meet the needs of the brokers

*"The reality on the ground is that the brokers feel it is a fantastic tool, they feel it is a differentiator. Do they actually use it in terms of the adoption the way we thought they would adopt it? The answer is no. When you dig and see why is it not the case? It's not that your product is not good enough. In fact, our product is first to market. What we discovering there is we have not thought enough about what is the context in which they would use the MEA? So, a broker goes out to client typically once a year, so actually, you need to think about they going to most likely use this app when they go out and make this once a year trip. When they make that trip, it is part of the renewal. The other side is when it is a new business opportunity. The app needs to; they will use the app when they are going there with the purpose to do the renewal or the quote. We realised now we need to bring those elements into the app to sit alongside the risk management because if we don't do it then we basically asking them to use the tool for one part of what they going to do while at the client and then use a manual system or paper to do the other part so they would rather just do everything manually and not use*

*the app. The question is why didn't we realise that sooner? So, the business case is there, but we don't understand what are the obstacles in the way that impacts that adoption."* (DM1)

This point highlighted the fact that a thorough understanding of the requirements of the intended users need to be understood before embarking on the creation of a MEA. This pointed to a weakness in the business case. A very detailed analysis of the intended use of the MEA is required at the start of the project to mitigate the rejection of the MEA. This issue while relevant, also in traditional IT systems, is more of an issue in mobility. The technology is different and the behaviour when using these MEA is different from traditional systems. This was explained by the product owner,

*"…It is a very relevant discussion for mobile because other systems are a little bit more clear-cut, but here it isn't. IT has been consumerized. So those guys are doing business on consumer devices so it's different and the lines are not so clear anymore."*

How MEAs are designed and how they are intended to be used needs to be thoroughly understood if adoption and use are to be successful.

### 6.5.2 Revised targets

It became apparent that adoption and use of the MEA was happening at a slower pace than had been anticipated. The steering committee requested revised targets which were more realistic to achieve. This was an important change to how benefits had been managed in the previous projects. With on-going tracking of benefits, it was possible to revise targets and investigate why the targets were not being met. Mitigations were implemented to alleviate problems with the use and adoption of the MEA because the measurement was taking place on a monthly basis. A decision was taken by the steering committee that the team should respond and make changes to the adoption approach as new statistics become available each month on the progress of the MEA.

An insight into how the BM could be improved with regular reviewing of the benefits was described in this excerpt;

*"The other thing is that you made assumptions upfront. Typically, a better understanding of the problems and what you trying to address is actually happening during the project and not before you start. That is where you need to say let's go update the business case based on what you understand better. In which case you may identify, I'm convinced, a lot more benefits*

*that you identify at that point than what's the case right now. With the result that because we don't do that, the business case stays this high-level business case. You can question whether they are really benefits. Our business case says you are going to have 100 brokers that use the thing by July. What is the benefit of that? Shouldn't we be quantifying the benefit regarding if these 100 use it, what does that mean regarding reducing claims or more revenues? I think you should be doing the business case, but you should be making sure as you go through the project that you update the business case with the reality regarding the specific problems. Maybe you got it wrong? We do it here; we get the money, start the project, then someone says we have steering committee coming up, and someone asks have we realised benefits? Ok, let's knock something together, and now you knocking against this high-level business case. You need to grow that business case. You need to unpack it. Just like you unpack a design, you need to unpack the benefits model." (DM1)*

The point being made by this manager is that no reviewing of the benefits was taking place, so no new benefits were being identified. Whatever the business case stated at the start is what was measured if any measurement took place at all. The business case needs to be a living document, not a static document against which possibly irrelevant benefits are measured.

### 6.5.3 Poor risk identification

ARC2 demonstrated that the identification of risks and what would be required to realise the benefits was still poorly assessed.

*"We define the business case badly. The one which we do define, we don't understand what it is going to take to get there. There might be five things to do, but we do only 3. Then once you've done them, things change which may delay them. Very often if you spend more money, it affects the business case regarding the cost-benefit equation. It's very dynamic which is why we end up delivering something later, or we go over the figure. The work is more complex."* (DM1)

*"I think with mobile it's even worse in the sense that we don't yet collectively have as good an understanding of what mobile entails. We don't understand for example that the app makes sense, the design is brilliant, but if the person doesn't have a device you are stuffed whereas for other projects the brokers have pc's so there are more hurdles with the mobile stuff, I think*

*at this point more than with other technology-based projects. Because of that, you underestimate the impact of those things on adoption. I think that maybe it's not an impact on the business case and the benefits you can realise but on how long it will take to realise those benefits because we didn't understand it."* (PM1)

## 6.6 Reflection (Potential for further benefits)

After the second ARC, it was clear that BM and realisation of benefits in these MEA projects were still lacking. While the process had become more formal and structured, issues such as poor adoption were still an issue which resulted in fewer benefits accruing from the MEA. What was pertinent to observe in this last stage of the ARC was that only the Development manager and to a much lesser extent the Business change manager were actively managing this MEA and the benefits. The business head and executive head were still around, however, this MEA was no longer a big focus of theirs. The development manager had the most insights to offer regarding the problems that still existed. These weak points and areas of improvement in future MEA projects will now be discussed.

The identification of risks and the effort spent on identifying the issues needing to be addressed for the benefits to be realised needs to be very thorough. This was still lacking in the process that was followed for ARC2 as mentioned by a manager,

*"So, we'll plunge ahead but we forget that people don't have smartphones. How do you build this into the process so when you say ok here is the phase where we identify the benefits, here is the phase where we say, "what is it we need?". That needs to be more rigorous regarding all components, be it soft or hard. We not doing that well."*

### 6.6.1 Lack of BM structure and continued BM

Overall the BM process which was implemented and tested was not successful. While there was an improvement in BM from the first MPCI project, it could not be said that the process had been a success. This sentiment was echoed by a manager when asked whether BM was successful in the project:

*"Risk assessment it is also a case of it hasn't really happened. It didn't happen in an organised way. It happened at some point ok hey we have a steering committee let's do a benefits*

*assessment. Actually, a business case is done, but it speaks more to the … it speaks about safe benefits."* (DM1)

This point was reiterated during a follow-up interview with the same participant,

*"I would say in terms of following a structured, consistent process it is non-existent. In the first two projects, except for the standard admin type management, PM2 would put something together when she would report. She would ask PO1 just before the steering committee to give some benefits. I'm not saying nothing was done, in terms of what we are thinking about a benefits management process, it doesn't happen. The Risk app, we had people involved in the project that knew about the business case, but it is a very superficial business case." (DM1)*

The reason for the BM not succeeding was summarised quite well with this explanation,

*"What do we want to improve and that needs to be not just a once off thing, it should be kept alive, we should be open to seeing, ok if we do this then there are benefits in terms of saving time, or we need to be able to add that to the business case and grow the business case as you go along as opposed to looking at it as, well we did the business case to get the money. If you don't go back to ask for money again, then it's not a major problem because no one is looking. If there is a phase 2 then there is more awareness of, 'ok we going to have to make sure that we quantify the benefits, we measure because we are going to go back to ask for more money because the executives are going to demand that'. If there is no phase 2, no one makes a big fuss about it. Even the portfolio office have told you it's not an important thing. The benefits are there, but by having a more structured and comprehensive approach, we can actually really get better at maximising that which we can get out of our investment. It's about that; it's not about getting the money. At this point, it is about what is the minimum you must do to get them money? So, you put some numbers together, make some assumptions, and that's it. I think more and more they want that."* (DM1)

Although the process started in a structured manner, as the project progressed the participation by the role players changed. The business owner that had initiated the MEA received a promotion and left the business unit for which this MEA was created. The new manager that replaced her did not have this app as a priority. A steering committee was instantiated to oversee the MEA, and they met on a monthly basis. The problem with such a committee was explained:

Ownership of benefits for the MEA was the biggest challenge in this cycle, and it was not resolved by formalising the roles and responsibilities. This was explained by the following dialogue.

*Researcher: How much better has the process been in this Risk project?*

*DM1: I don't think it is much better.*

*Researcher: Yet you had the formalised steercoms, had regular meetings and responsibilities?*

*DM1: Yes, that is a bit better but in terms of the business assuming ownership of targets and setting them you kind of have to drag it out of them. We had to play a much more active role in terms of preparing it and playing it back to them in terms of owning it.*

IT and more specifically the development manager had to assume all of the responsibility of managing the benefits himself. This lack of ownership and participation by others, caused the BM process to fail in this ARC.

*"Myself and BM1 are involved on the business case side in terms of managing targets, but I have taken more control over it because the buck stops here. Everything comes down to one individual that has to do everything."* (DM1)

Ultimately the process with all of the stakeholders ceased to work together, and BM was left to a single individual whose normal job had nothing to do with the BM.

A reason which could be the cause of this lack of commitment to the BM process was alluded to in this comment,

*"If I look at the things that we are doing now, it seems like it is much more speculative in the sense that not everyone is convinced that this is what we must do. It feels like you must walk a long road before the business supports you. Even the senior guys, on the Risk app on the digital stuff, not everyone has yet grasped this thing and believes this is what we need to do. And if that is sitting at executive level, it means it sits in a lot of other places too."* (DM1)

MEAs are a new type of business application which is still unknown in organisations. A lack of understanding of how the benefits could improve business performance can lead to this disinterest.

A lack of funding for BM was also identified in this ARC. Without funding, the effort required to manage the benefits and drive adoption so that the benefits materialize, cannot happen.

*"We have to unpack this better and guess what, it costs more money. We need to spend more money to realise the business case. You get a sum of money which is not nearly enough. Then you do the work and go over, and you get a hiding."* (DM1)

The funding process in the organisation was a risk to benefits realisation in the end as without adequate resources to promote and market the MEA, adoption suffered and uptake of the MEA was lower than anticipated.

An issue which was surfaced during the cycle was that ambitious planning of targets was problematic. Allowing more time for the MEA to be pilot tested in a field environment was suggested as one option to have more realistic expectations of use;

*"I'm saying our adoption is very ambitious in the sense that our targets are ambitious. Too high too soon, whereas we should be going, you actually need to get the thing out there, you need to get it in the hands and they must field test it. We need to give ourselves time to test it properly, practically, to weed out the issues and then grow, set targets realistically."* (DM1)

Detailed targets (Appendix 2) were only established after the implementation of the MEA which should be done at the very start of the business case. On reflection of project the development manager had the following insight, "What we doing is we start with a project and do the business case then we go to the targets. We should quantify it upfront. For example, if you defining the value prop around self-service. That process upfront must quantify the targets for self-service. Set the numbers and targets in the beginning not after you have decided on the benefits."

Ultimately the commitment from the organisation to realise benefits dictates the importance placed on the BM process. When speaking with the head of the project office, the general attitude towards benefits realisation and the weakness in BM was illustrated,

*"We say we spend 1% of the collected premium. If we spend that we are happy that the targets that we set out in terms of growth and expense will be met. It's a conservative investment if we stay within that budget, then we are safe. Then the effort of trying to track benefits becomes irrelevant really. So, it's a risk mitigation in protecting us against not tracking*

*benefits. We know a portion of that goes towards risk mitigation stuff. Anything we get out of this pool on top of is a bonus so therefore we go a bit light on benefits, but we do look at the big-ticket items and that's worth the effort."* (PM1)

If the company does not have a requirement to articulate and track benefits realisation, then the commitment from a large group of stakeholders is going to be missing.

### 6.6.2 No learnings carried between projects

A weakness found in the process of MEA creation in the organisation is that the rich learnings which come out of each MEA project are not carried into the next. This has the negative consequence of repeating the same mistakes and not benefiting from past learnings. There is no reflection on what works well and what mistakes were made. This sentiment was described in the following comments by two participants,

*"So, it is informal learnings, we don't actually sit together and if we sit it's about this project. Even if we do meet, it is not like those learnings are taken on board in the next project."* (DM1)

*"We don't use the time to extract past learnings. We don't have a knowledge base."* (BCM1)

What is required in the BM process is a formal knowledge base of learnings from each project which can be used later in other projects so that benefits can be maximized by not repeating mistakes.

### 6.6.3 Lack of frequent and on-going reflection

Without reflection and open discussions about what is not going well in MEA projects, the organisation will not improve in the BM. This was the view of this manager;

*"I think the only way we are going to get better at it and it's an obvious thing, is to first acknowledge that we're bad at it. We don't have discussions to say we are bad at it."* (DM1)

There were many areas which could be improved however the nature of projects in the organisation did not make it imperative for improvements in the BM process. Each project was dealt with in isolation and without reflection on previous projects. No learnings were consciously considered at the start of the Risk MEA project. The reason that this happened informally was that the same development manager was responsible for the development of the MEA in ARC1 and ARC2 so he was able to build on his knowledge from ARC1. No knowledge repository existed for the organisation which others could utilize and should DM1

leave the organisation, all the knowledge and learnings would leave with him. This manager went on to conclude,

*"It is definitely not getting better, we may learn as individuals, but as an organisation, we are not sitting back and reflecting."* (DM1)

### 6.6.4 The role of Product owner

A missing component from the BM process was that of a Product owner whose responsibility extended past the project lifespan and continued so that benefits could be tracked and interventions could be taken to realise the benefits in the longer term. Product owners that understand the complexity of MEA and their adoption and use and how these all result in benefits for the organisation are critical. When asked who should be managing the benefits of the MEA once it was being used the response was,

*"I think we need product owners that are trained and understand these things. It's like I tend to think I'm a software development manager but the other day when I was thinking about the videos we have to make with marketing. There are promo videos and tutorial videos. In the end, this is like a movie production, you are a director, and you are actually directing, you need costumes, you need props, and it's becoming more like that." (DM1)*

If there is not adequate ownership of the MEA by someone in the business that is responsible for the MEA's success, then BM is going to be poor.

### 6.6.5 Deliver benefits incrementally and early

The biggest challenge in managing the benefits was keeping the focus of the stakeholders throughout the project and after the project finished. On reflection, the development manager had this to say when asked how BM could be done differently in the next project,

*"I think to realise the benefits I would show the benefits earlier. Probably we should have aligned more with their seasons. Just say we are just doing one crop. Be more incremental. We did what PO1 wanted, and we didn't stop her, we were incremental, but we did a whole chunk of commodities whereas maybe we should have just done a few, their winter season starts there so let's just develop what we need in the winter. Let's develop the functionality in that and use it. Go with a viable product."* (DM1)

The other reason for not having the full attention of the senior stakeholders was explained as such:

*"The process is too long from when they start investing to when they start seeing benefits. So, you need to have a shorter turnaround. Ideally, you would break this into shorter iterations so you can still see benefits coming through, you can see an upward curve of benefits."* (DM1)

To maintain focus on the BM, it is important to structure the delivery and use of the MEA in such a way that benefits are demonstrated and added incrementally. By doing this, the team does not become distracted and move onto other projects and interests as was the case in this study.

### 6.6.6 The 'burden' of governance

A possible reason for the challenge of managing benefits was highlighted with a response to the question 'Why doesn't the BM process work?':

*"You can actually deliver stuff without all the formalised process and just get it out and start using it, and the payback is there. What's the line between having a formal case and you don't have to have a formal case, I don't know, but it's actually worth mentioning." (DM1)*

What this showed is that even after all of the work and effort in formalising a BM process, important stakeholders still viewed the process as cumbersome and did not buy into it completely. Without a total commitment from everyone in the project and all role-players in the organisation believing in BM, it is unlikely to succeed.

### 6.6.7 Continuous product management

The AR cycles in this study highlighted a major issue with BM in the MEA projects which related to BM after the life of the project. Benefits for these apps are mostly realised long after the project to create the MEA has ended. This implies that the business case benefits are not tracked or managed much longer than the project duration. A remedy to this was suggested by a research participant:

*"When the project stops now, we all move onto something else. There is nobody that owns the business case after that that monitors it and gets back. I suppose that's another thing we could do. We don't have a continuous improvement process. I think we need that where this team must not be a project team, it must be something that transcends the life of the project.*

*It must be something in the business that looks at the product. Product management discipline needs to be put in place. You might have multiple projects working on the same product. Taking a product ownership and a roadmap view is imperative. But you need someone to drive it and own it." (DM1)*

This need for a product management role for each MEA will ensure that business cases outlive the project and benefits are managed until all benefits are realised. This will ensure that the funds spent on developing the MEA achieve maximum value.

Benefits realisation according to Ashurst et al. (2008) is part of an organisation's dynamic capability and it should be developed and enhanced as an ongoing process of organisational learning.

**Confirmation of Criteria for the Principle of learning through reflection**

| Criteria | Response |
|---|---|
| Did the researcher provide progress reports to the client and organisation members? | Feedback on progress was given to the Development manager |
| Did both the researcher and the client reflect upon the outcomes of the project? | Yes, with regular conversations with the Development Manager |
| Were the research activities and outcomes reported clearly and completely? | Yes |
| Were the results considered in terms of implications for further action in this situation? | Yes. The recommendations for improving the BM process in the organisation were conveyed in a research report. |
| Were the results considered in terms of implications for action to be taken in related research domains? | Yes, this investigation can be conducted in other organisations and other industries to see if the findings differ. |
| Were the results considered in terms of implications for the research community (general knowledge, informing/re-informing theory)? | Yes, in improvements in the BM process tested |
| Were the results considered in terms of the general applicability of CAR? | Yes |

*Table 34: Principle of learning through reflection*

## 6.7 Summary

The BM process in this ARC was again not successfully implemented. There was an improvement over the previous ARC1 however the enthusiasm with which it started seemed to dissipate during the project. This can be explained mostly by the attitude expressed by the

head of the project portfolio office who believed that digital, within the organisation was more of a novelty and a new unexplored area. As such benefits were not the main purpose of these applications. This was her view,

*"Risk app, it's worth it because we know we need to play a role in the mobile space because the market is indicating it. Do you want benefits from it? It's worth the 2.5 million spent, see how it lands; there's a learning from it."* (PM1)

As can be seen from this comment, not all initiatives in the organisation were deemed important enough to track benefits. Some initiatives were seen as necessary to have such as MEA however the BM was not a priority in the larger project portfolio. Thus, a light process for BM in the organisation for MEA was more practical. Ensuring the detailed benefit identification took place so that strong business cases could be created was the primary outcome of this process. Also knowing which risks could prohibit the benefits from materialising and taking steps to mitigate these risks was also a positive outcome.

# 7. Benefit Management Discussion

This chapter discusses the findings from this study for question 1 and contrast them to the literature. The question asked in question 1 was:

**Which process can manage the successful realisation of MEA benefits?**

Benefits realisation is the very reason IT projects are undertaken. It is with the intention of realising benefits from implementing an IT system that investments are made in new systems or technology projects (Zwikael et al., 2018). Organisational performance is strongly correlated with successful benefits realisation (Chih & Zwikael, 2015). Literature shows that organisations derive more benefits from projects when the benefits are stipulated upfront and then managed throughout the duration of the project (De Moraes, Cuhna & Terlizzi, 2017). The starting point of any project needs to be the upfront identification of benefits that can be expected from the project and that these benefits then need to be managed so that the outcome is improvements to business performance (Marnewick, 2016).

This study found that there are varying levels of BM which are appropriate depending on the size of the project and the size of the investment in the new technology. This finding is backed up by other studies (e.g. Doherty, Ashurst and Peppard, 2012; Freeman & Seddon, 2004; Hesselmann & Kunal, 2014) which suggested that benefit taxonomies and methods of BM be adapted appropriately to IS/IT project characteristics. The creation of a MEA can be considered to be a small investment of under R5 million which in the larger context of a corporate project budget pool is considered small. This study found that a simple BM process for smaller projects such as MEA was required in the case organisation as there was a lack of appetite for heavy governance and BM process. Even though organisations are aware of BM processes, they are not implemented, and the benefits associated with IS projects are consequently still not being realised (Marnewick, 2016). The reason for this finding which came from this study was that a heavy BM process was too cumbersome for smaller projects. The most useful contribution to be made to this light BM was the creation of a list of benefits and risks which can assist MEA projects to define their potential benefits and mitigate their possible risks. This can be used to build a business case for the MEA. Prior studies indicate that correctly identifying project benefits at the start of a project, increases project success significantly (Zwikael et al., 2018), therefore having a mechanism to assist in identifying benefits from MEA projects is necessary and valuable.

The process followed for BM in this study (Figure 7) was a combined process model of the CAR and Cranfield models with the addition of the inputs and tasks required for each step of the process. This model allowed for the mapping of BM to the stages of CAR which had mixed success for BM and realisation in this study. The form of the model represents BM as a sequence of stages at which specific BM tasks are carried out. This process model is used when a project is first initiated, and the idea of a MEA is conceptualised. It ends when benefits are no longer expected from the MEA which would probably occur once the MEA has been in use for a significant amount of time and it is embedded in the process in which it is used. This is a similar finding to the literature. Benefits must be actively managed to be obtained, and the management does not stop when the implementation is completed because benefits lag implementation (Peppard, Ward & Daniel, 2007). The management of the benefits should continue until the expected benefits have been achieved, or it is obvious that they will not be realised (Peppard, Ward & Daniel, 2007).

Figure 9 represents the process model and steps which were used to manage the benefits in the MEA projects. Each of the process steps and their related benefit objectives along with their inputs or tasks at each step will now be discussed.

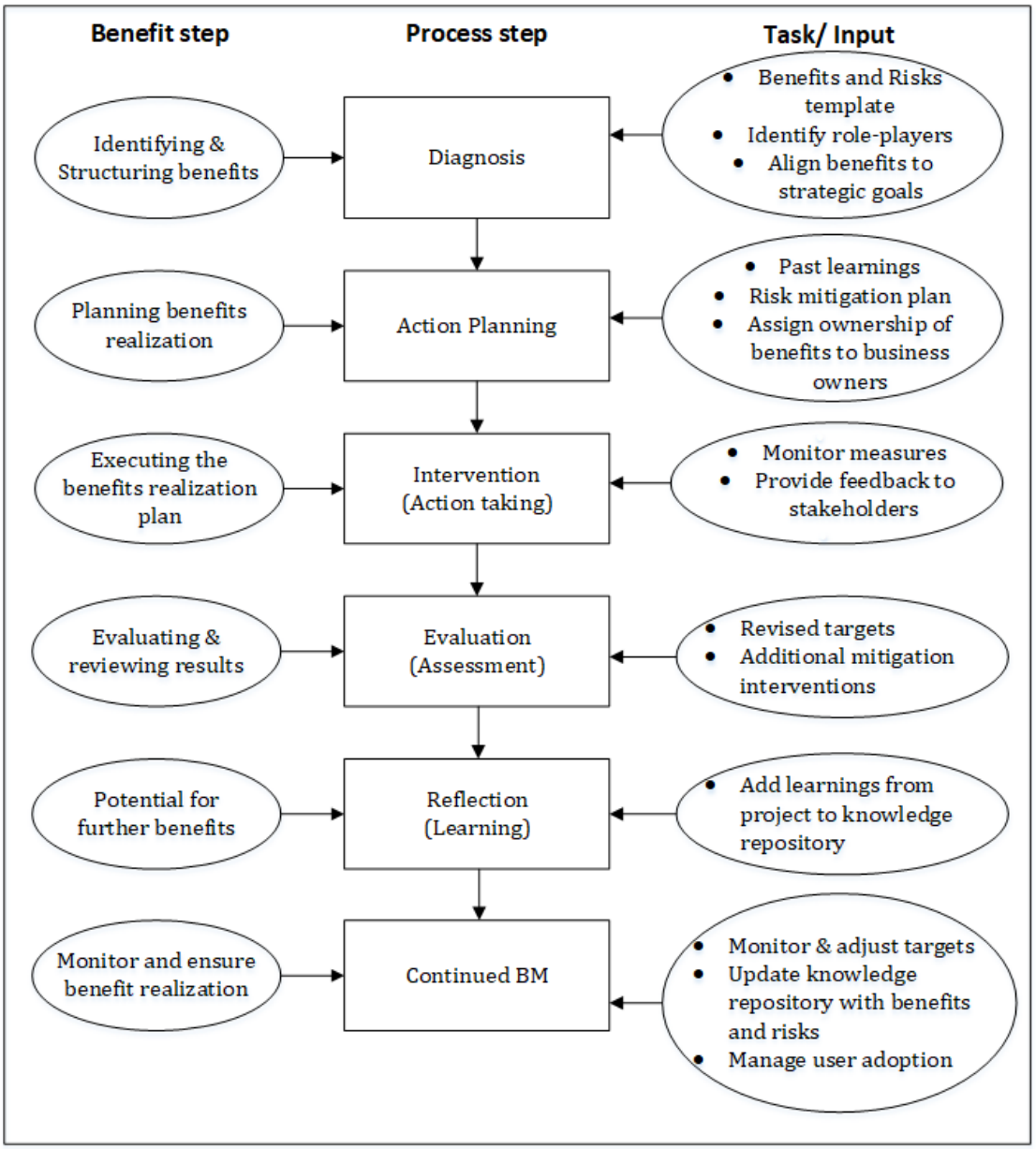


*Figure 9: Final Benefit Management model for MEA*

## 7.1 Diagnosis – Identifying and structuring benefits

In this step, there are three tasks to complete, identifying the benefits, identifying the role-players that will be responsible for the BM and aligning the benefits to strategic objectives.

### 7.1.1 Identify appropriate role-players

A starting point for benefits management is identifying the correct role-players who can influence BM and ensure that benefits are realised. This requires commitment from business as well as IT as the enablers of BM. The existing BM theory does not specify who should be involved when to involve them and to what extent (Waring et al., 2015). Users need to be

included in all stages especially during the early phase of requirements gathering. Without this being done correctly, you stand the risk of producing a MEA that won't deliver the expected benefits because of poor functionality, use, and adoption. This comment highlighted this point:

*"In this project, PO1 represented business, they are operational, but they are not the guys going out in the field. So, something is missing. So, you build something based on what they say is needed. Then when they go out on pilot, then the guys say actually it does not work that way."*

The stakeholder team needs to be inclusive of managers, owners, and users of the MEA if benefits realisation is to be ensured. The finding from this study was that for the size of investment required for a MEA, a small dedicated stakeholder group is more efficient and feasible. The projects in this study were managed by the development manager and the business change manager for most of the time. The other stakeholder played a lesser role in the project and ultimately neglected their responsibilities on the project. This discussion demonstrates the issue. This participant was talking about the involvement of the business stakeholders, and as mentioned, the actual involvement was ultimately minimal:

BM1: "It is a little bit driven from our side, and we extract the data, we are left to set the targets. It's not really fully owned by the business."

Researcher: "Not fully owned or not owned? How actively involved are they?"

BM1: "They pay it lip-service."

Having two or three committed stakeholders that have the authority to make all of the decisions for the MEA makes more sense for smaller types of projects. In this study, the project manager, development manager, business change manager, product owner and the support of one executive head was sufficient to identify, track, manage and deliver the benefits of each of the MEA. The key stakeholders must accept responsibility for changing how they work to make effective use of the new technology (Peppard, Ward & Daniel, 2007). Obtaining the right project sponsors from the start of a project increases the probability that MEA benefits can be successfully realised. This is a finding is the same as that found in the literature (Nelson, 2007).

Benefits management is a competency in organisations (Ashurst et al., 2010) and in order to improve the level of proficiency, the stakeholders need to be educated about BM. BM is a skill which needs to be learned. The literature recognises this lack of understanding of BM by project role-players which consequently impacts on the ability of projects to realise their benefits (Lin et al., 2005). In this study, the stakeholders were not committed to the BM which is commonly found in other studies (Ashurst et al., 2010; Lin et, al., 2005). This makes the selection of the correct role-players in the BM process important. They need to understand BM and be willing to take on the responsibility of driving the benefits realisation to its completion.

### 7.1.2 Benefits and Risks Template

A simple method of identifying the potential benefits proved invaluable in this study. MEAs are a new technology, and most corporates have little experience in their development and use. As such, having a tool which can make the task of benefit identification simple proved useful. The MEA benefit template created in this study in Table 31 can serve as a starting point for benefits to be realised from an Insurance MEA. *Appendix 11* structures the benefits and risks template by the entity impacted by either.

The importance of the template was validated by the development manager:

*"I think you've got a good idea by talking about a catalogue or toolkit, a benefits toolkit so when you do your designs, and it doesn't have to be for mobile. It can be for any system to say hey here's a benefits checklist or benefit catalogue, sounds bureaucratic but doing a benefits identification exercise is part of the requirements. I think it can add a lot of value, you build it in, not making it something separate."*

He also added, *"There is a general list of categories of benefits and opportunities that if you start off you can already apply that and say ok, given this problem, what are the opportunities we've got for improvement?"*

The importance of this step in the process was explained by the manager as follows,

*"I think we have to get better at defining the benefits and how we build for those benefits and how we track those."*

These points highlight the value of having a benefits template from which the MEA benefits can be identified. This finding is the same as that found in the literature. For a project to add

value to an organisation, its benefits need to be properly defined and monitored throughout the project's lifecycle (Terlizzi et al., 2017).

The second advantage of the benefit template is that it helps the project identify realistic benefits in the business case. Overstating benefits to obtain project financing is a common problem in organisations, and this leads to what is perceived as project failures when these benefits do are not realised (Lin et al., 2005). By using a checklist of benefits which have been realised in other MEA projects, the stated business case benefits are more likely to be realised.

### 7.1.3 Align benefits to strategic goals

This study showed that benefits need to be aligned with the organisation's strategic goals and not merely deliver benefits in isolation. For benefits to be owned by the business owners and for the business owners to take responsibility for their delivery, the alignment is a crucial step in the benefits identification. In this study, this alignment was only done retrospectively, but it is an important part of the benefits identification upfront. On reflection of how benefits identification was done for ARC2, the development manager made this observation, "Embarking on this project and realising the envisaged benefits directly supports the InsureUs Strategic objective of 'continuously increasing efficiency'. Also, optimising the assessment process directly supports the strategic goal of 'revenue and geographic diversification'". If this alignment is not done there is a lack of buy-in for the MEA from the business owners, and the adoption of the MEA could suffer. This misalignment was aptly described by the development manager when asked how the alignment of benefits from the MEA was addressed,

*"We need an app to do xyz, but actually if you think about the app, it is something that is part of a strategy. If you take risk management, it is a necessity for us, and we've said let's do this app. But outside of the app, we haven't prepared the ground for risk management in terms of the culture, making people understand. If you go to [a major competitor] web site, they talk risk management as if it is an offering just like commercial and personal lines and things. They have videos on their web site talking about risk management, so there is a lot more investment. The app will function inside of that whereas we don't have that. So, it's so many things that have an impact that you need in place so that when the app lands they adopt it. That is a lot broader than just the MEA project. The app should just be one part of the strategy, but that strategy is not being teased out".*

The importance of aligning benefits from projects to organisational strategic goals is discussed in the literature (Marnewick, 2016; Waring, Casey & Robson, 2015) and the importance was also found in this study.

## 7.2 Action planning (Planning benefits realisation)

This step requires a detailed plan for realising the benefits. The step should be used to ingest the learnings from previous projects and also to plan how risks to the benefits, identified in the previous step, will be mitigated in the next stage.

### 7.2.1 Learnings from past projects

This phase relates to planning how the benefits will be managed and realised. This phase needs to begin with a reflection of the learnings of past MEA projects. The case organisation did not have a culture of learning from past projects and it resulted in repeating of past mistakes. The ideal situation is to start each project by examining the mistakes of past projects and ensuring that these issues are mitigated in the current project. A manager explained why this did not occur, "I think it is because you do one project and the next time there is a project it is different people and the learnings are not carried over."

*And*

*"… we are definitely learning as we go from one project to another, but I take the point that it is not embedded in some documentation. Having said that, on the assessment project we did start documenting the flows but there is more to documenting the flow and how it is going to work, but it is not aiming at how do we optimise the process?"* (PO1)

It is essential that a process is established in the organisation to record lessons learned but more important, that these past learnings be reviewed and incorporated as an official step in the process of action planning. Nelson (2007) had the same finding of the importance of retrospective learning from projects. By uncovering patterns of practice, organisations should achieve the benefits of accumulated learning which ultimately increases business value (Nelson, 2007). This ensures that the same mistakes that were made previously are not repeated and that practices that worked well in the past are replicated in future projects.

### 7.2.2 Risk Mitigation Plan

The second consideration in planning benefits is identifying the risks which could prevent the benefits from being realised. The risks to benefits realisation were identified and specified in a template in this study which can be used alongside the benefit template at the start of new projects. Thinking about which obstacles could prevent the benefits from being realised, helps define the mitigations which will be required for project success. The lessons learnt can inform this step, but the project team can also look at each benefit and consider potential problems that could. These mitigations should be documented, and their progress tracked in the same manner as benefits tracking. Responsible persons should be assigned to each mitigation. The finding in this study was also confirmed in a study by Nelson (2007) who found that project managers in IT projects seldom proactively dedicate enough time to risk identification and mitigation. Risks according to Nelson (2007) are often addressed reactively. Nelson (2007) suggested that a 'top-10 risks list' should be actively monitored in projects and the contribution of this study which addressed this suggestion was in providing a list of possible risks in MEA projects. The value of a checklist of risks for MEA projects was confirmed by the business change manager when asked if a list of MEA risks was useful?

*"Yes of course if you think with the risk app, we learned as we went along. We worked on the assumption even at the beginning of the project; the steering committee said we don't need change management. The brokers already know insurance and know how to do a risk assessment. The app is an intuitive thing, and they can just use. When we started implementing this thing, there was a resistance to using the device because it was foreign to insurance. They needed training because even though it is the same insurance they were doing, they are doing it differently. It is not a simple thing for them to switch. Yes, the risk template is definitely value adding."*

### 7.2.3 Assign ownership of benefits

Assigning owners to each benefit and making an individual responsible for delivering that benefit is as important as defining the benefit. Without ownership of the benefits realisation, the target is unlikely to be achieved (Chih & Zwikael, 2015; Peppard, Ward & Daniel, 2007). Assigning the ownership of the benefits realisation to the owners of the business processes where the MEA will be used ensures that there is a focus on the delivery of the promised benefit. The same finding of assigning the correct benefit owner was found by Nelson (2007).

The business change manager explained why assigning owners to each benefit was critical for the successful realisation of the benefit, “It all comes back to ownership. If people don’t take ownership, we struggle with benefits. One benefit of contracting upfront is making it real for them. So, we don’t start the project before you sign off that you will be responsible for this target and this benefit. That is the key.” Marnewick (2016) made the same observation in his study where he found that business needs to own the benefits from IT projects if they are to be realised. Both Marnewick (2016) and this study found that the problem with business owning the benefits is that they seldom have to tools that they need to track the benefit targets.

The complexity with MEA is that they impact on multiple business areas. In the case of the Risk MEA in this study, there were four business stakeholders who were impacted by the MEA so contracting with the appropriate owners who derive the benefits from the MEA in their business areas was important. This importance was highlighted by the business change manager with this comment,

“So, in the Risk app project, the thing that happened there was that the people who provided the requirements were a more internally focused team and they gave the requirements. They weren’t the team that was driving the app out there. So, we didn’t contract correctly, we missed that stakeholder. There isn’t one business owner in the app development. One is giving the quality statements; there is the digital ownership and then the ones that have to drive the progress. We didn’t contract the broker services, so that’s where we missed the mark. So, we are now getting them on board.”

A governance model proposed by Zwikael and Smyrk (2015) assigns benefits to two main stakeholders: the project owner (accountable for benefits realisation and representing the funder’s interests) and the project manager (accountable for delivering the outputs for achieving the project benefits). This study would add to those two the business owner where the MEA will be used and who will directly receive those benefits. This is necessary because someone directly involved with the MEA on a daily basis needs to take ownership of the benefits realisation.

## 7.3 Intervention – Executing the benefits realisation plan

This phase of the BM process is predominantly about implementing the actions decided on in the previous step. The two tasks included in this step are the monitoring of targets and providing feedback to stakeholders.

### 7.3.1 Monitor measures

A quote from Alice in Wonderland by Lewis Carroll best sums up the importance of having targets and monitoring them,

*"If you don't know where you're going, any path is as good as another... but you won't realise you're lost, you won't know what time you'll get there, you might unknowingly be going in circles, and others won't understand how they can help. And, since you could pass right by without knowing it, you won't get the satisfaction of having arrived!"*

The metrics identified for each of the benefits must be actively tracked, and feedback must be given to the stakeholders so that incremental changes can be made to the benefits realisation plan. It is important that measures of success should be defined before the project initiation (Lin et al., 2005). These measures are often only defined after implementation or not at all (Lin et al., 2005). Without targets, it is not possible to track benefits and to know whether the benefits have actually been realised or not and to what extent they have been realised. Continuous monitoring of the benefit targets is necessary so that adjustments can be made to the targets as well as mitigations to risks if the benefits are not being realised. Understanding why the targets are not being achieved helps guide decision makers in making the necessary adjustments to rectify the problems. The finding in the study was that benefit tracking was mostly reactive when additional financing was being sought as a means of explaining how previous funds had been used. A similar finding is discussed in the literature (Goyette & Cassivi, 2017) where it was found that the reflection and learnings stages are only executed if senior management questions the benefits realisation and project success. Perception appears to be the most important factor of project success and executives' lack of willingness to measure success explains the incoherence between pre and post-implementation evaluation (Goyette & Cassivi, 2017).

The lack of measurement was captured in the following comments made by a manager,

*"So, the reporting is not consistent. What has always happened is we do a business case, then we don't drive adoption very hard then before a steering committee or before we have to go ask for more money, we rush around to go count how many of this and how many of that. The reporting and analytics are all factors."* And also, with this observation, *"They haven't been getting together often enough. Initially, it happened more often every week because we were getting requirements but since we went live it slowed down." (DM1)*

The project manager went on to explain his view on how the measurement was done,
*"I think it's very ad-hoc in nature and we do it because the steering committee is coming up and the executives want to know. It is something that you actually need to sustain through the life of the project and beyond in my opinion."*
IT project outcomes are improved when project success criteria are defined and continuously measured (Terlizzi *et al*., 2017).

### 7.3.2 Provide feedback to stakeholders

It is easy for stakeholders to become less involved and to lose focus in the project at later stages, so it is important that regular feedback sessions occur. The stakeholders in this study were not as committed to the BM process as the researcher had intended for them to be. When asked whether feedback was given to stakeholders regarding progress, he responded, "There is an element of not having discussions often enough, fast enough. You don't always have the right people there." There is a risk to the delivery of benefits if the correct stakeholders are not involved in the BM and this finding is the same as that found by Nelson (2007). Poor stakeholder engagement is often a reason for IT project failure (Nelson, 2007) and this study found the same issue. This study found that keeping the stakeholders informed of the realised benefits and the progress made towards benefits realisation led to improved stakeholder engagement and increased probability of the benefits being delivered. This finding in this study is corroborated in previous studies (Albertin & Sanchez, 2008; Marnewick, 2016; Terlizzi et al., 2017).

Another reason that BM fails in organisations is that the stakeholders that are responsible for BM and benefits realisation are not skilled in the process and techniques of benefits realisation (Waring et al., 2015). This finding in this study is similar to that found in the literature. A participant had this to say about the BM competency in the company,

*"I think benefits management as a competency is not really well understood and there isn't enough emphasis on the training."* (PM1)

She added,

*"You need to know what you are doing in terms of benefits. What is happening here is, we don't have enough skill in the organisation to build business cases."* (PM1)

It is important for all project stakeholders to be trained and knowledgeable about BM for the BM process to be managed and the benefits to be adequately tracked and measured. This similar finding was made by Ashurst and Hodges (2010) who found that poorly skilled BM project stakeholders are a risk to successful BM efforts. Without this understanding, there is a lack of commitment to the BM process, and it will most likely fail or be done badly as was the case in this study.

## 7.4 Evaluation – Evaluating & reviewing results

This step requires there to be an evaluation of the effectiveness of the BM. The two tasks which need to be conducted at this stage is the possible revision of the benefit targets and whether adjustments need to be made so as to realise the benefits based on the tracking that was identified in the previous step. Additional steps might need to be taken to deal with risks that are identified during the intervention stage.

### 7.4.1 Revised targets

On-going monitoring and tracking of benefits allow for the revision of targets. Benefits management is not a static process, constant tweaking of targets is necessary to explain the value of the MEA projects to the stakeholders and broader organisation. With constant tracking, these adjustments are made possible. The business change manager explained how targets were tracked in the Risk MEA project:

*"This year we matured the measurement a little. We can track the actuals against the targets and what's interesting is what we see from that is sometimes the actuals are way higher or lower than targets. Then you can ask the question, "Is there a big reason why it is not used, and the actuals do not meet our expectations or is it we made the wrong assumptions when we did the target setting? At least we have the data to ask the right questions to go into next year to set more appropriate targets.".*

The importance of having realistic targets for benefits is emphasised by Zwikael et al. (2018), and they underscore the importance of evaluating and revising goals as part of the process of effective benefit realisation.

### 7.4.2 Additional mitigations

In the same way that unexpected benefits will emerge as the MEA is used, so too will unexpected risks which were not anticipated. The evaluation stage is necessary to review the risks and implement or adjust the mitigations needed to address them. Constant monitoring of the progress of the benefits realisation against the targets will highlight where potential problems exist and mitigation steps can be implemented, or adjustments can be made to goals. This process is cyclical and constant monitoring and feedback should be done to guide the benefits to their ultimate realisation. When the change manager was asked how the benefits measurement and realisation could be improved, her response explained the importance of monitoring and adjusting the risks:

*"What I found in the Risk project is that the things that we expected to be problems were fine and different problems actually came up. It is important to keep your eye on the problems which could stop you from reaching the targets and constantly make tweaks to the benefits plan. It is a continuous process not just something that happens at the start."*

The importance of periodically reviewing risks to benefits realisation in projects, so that corrective actions can be taken, has also been highlighted in the literature by Marcelino-Sádaba, Pérez-Ezcurdia, Lazcano & Villanueva (2014).

## 7.5 Reflection – Potential for further benefits

Reflecting on the successes and failures of projects in this study was very poorly done as a step in the BM process. The stakeholders that started in the project were mostly absent once the MEA were implemented and even when they were still actively involved, reflecting on the process of benefits realisation was a low priority. This finding is not unique to this study, neglecting the reflection stage of projects is often found in the literature (e.g. Marnewick, 2016; Terlizzi et al., 2017).

Organisations do not carry out post-project benefit reviews consistently or effectively (Ashurst & Hodges, 2010). The same conclusion was found in this study where it did not exist

at all. According to Ashurst's benefit capability model (discussed in 2.8.2), this is an immaturity in the benefits realisation capability within the organisation. What emerged from this study, however, was that the organisation was selective in which projects and IT initiatives full BM and realisation was applied. This comment highlighted this attitude:

*"We try and find a way around it because we feel that you get stuck in your ways when looking at benefits realisation instead of delivering. So, I think I think the process exists. We are rigorous at the big projects but we not rigorous at the small initiatives."* (PM1)

She went on to explain the reasoning for this behaviour,

*"I think it is a problem, but I also think there is a balance between the time you spend to quantify the discussions that you have vs the money that you spend."* (PM1)

This comment shows that there is a belief in the organisation that the cost of BM is sometimes not worth the expense compared against the benefits to be realised. In the case of MEAs, there was a lack of commitment which was not necessarily seen as a problem needing to be solved. The criteria against which the project was measured, the final cost, was the biggest factor affecting the perception of its success. Measurement of the benefits and benefits realisation after the project ended, was not done. The literature confirms this finding that organisations are more focused on system implementation rather than a comprehensive search for benefits over the longer term (Farbey, Targett & Land, 1994; Peppard et al., 2007).

A study by Goyette and Cassivi (2017) confirmed the finding of this study where they found that the post-project validation of pre-implementation evaluations was absent from the IS projects they studied. While the mechanisms for post-implementation evaluation was present in the companies, it was not done unless top management questioned the project success. The same was found to be the case in this study. The participation from the stakeholders in the evaluation and reflection stages of the AR cycles was lacking compared to the initial stages.

### 7.5.1 Add project learnings to knowledge repository

Project learnings which can be used to build institutional knowledge from which future MEA projects can benefit, need to be formally recorded in a knowledge repository. Without this taking place, future projects are potentially exposed to repeating mistakes made in previous projects which could be costly and a waste of funds. When asked if learnings from projects

were captured, the business change manager replied, “I guess we are supposed to. The methodology says we should, but at this stage it is just the person on the project bringing some learnings form the previous one. We don’t have a formal knowledge base where learnings are captured. Something like that could be useful”. The development manager also explained the value of having a repository, “…there is nothing written down to say here is the pattern for this or that. We are basically making them up as we go along. That experience is invaluable because in the next project you know what to look out for. Every time you learn a little more.”

The benefit and need for electronic knowledge repositories which facilitate knowledge reuse in projects are discussed in the literature (Pee, Kankanhalli, Tan & Tham, 2014). An electronic knowledge repository is a useful tool for supporting knowledge management in software development projects (Rus & Lindvall, 2002).

## 7.6 Continued BM – Monitor benefits realisation

This phase deals with the continued monitoring and management of the MEA benefits after the project has officially ended. A benefits audit is usually conducted 6 -12 months after delivering the project output (Thomas & Fernandez, 2008). As benefits emerge as well as risks to the not yet realised benefits, action-taking is required to build the knowledge repository so that the true value of the MEA can be recorded which can be used to justify further MEA projects in the organisation and so that possible risks to MEA projects can be averted in other projects.

This study found that benefits emerged after the initial identification of benefits at the start of the projects. Additional benefits surface over time which can be included in the value proposition of the MEA. This presents a problem for the traditional approach of managing project benefits as explained by a project manager, “I don’t see how in a project environment we can continue to track benefits, once the project is completed say 2 years down the line, how do we manage the scope of all the other projects that we are dealing with? And then to continuously track that benefits realisation”. This finding is also discussed in the literature by Zwikael and Smyrsk (2012) who believe that the responsibility of benefits realisation in the post-implementation stage is beyond the scope of project management. They suggest that it should be the responsibility of the business change manager who is normally responsible for

the transition of the project output into the business as usual process of users. The Business change manager in this study had the following view regarding who should manage the post-implementation benefits,

*"If that Business change person is a person reporting into the business unit that is using the app then that role can take on the responsibility. But an IT organization cannot own the benefits that you want to realise. IT can help, can facilitate, provide the tools but if the change manager sits in the IT organization and is in the project then it must be the Product owner in the business or the business owner himself.*

Findings in the literature are that the full life-cycle approach to IT BM is very limited and is still immature (Breese et al., 2015; Hesselmann & Kunal, 2014; Terlizzi et al., 2017). A benefits realisation capability needs to exist in the organisation whose responsibility it is to monitor benefits so that they are realised at some stage in the future. A possible way of doing this is suggested by Marnewick (2016) who suggests that the traditional project life cycle can be extended to include the delivery and realisation of benefits. Organisations need to create continuous benefit tracking and realisation capacity if BM is to be taken seriously.

### 7.6.1 Monitor and adjust targets

Benefits from the use of technology and more specifically in this case from the use of MEA are realised in the longer term and not necessarily immediately after implementation (Peppard et al., 2007). Doherty et al. (2012) argue that the outcomes from systems development projects are usually emergent, over the life of the system, rather than planned therefore the initial business case is not reliable for downstream management of benefits. This implies that benefits need to be monitored long after the project has ended and this finding is corroborated by Argyropoulou et al. (2009) who suggested that IT BM should have a post-implementation review. This study would suggest that the post-implementation review is a continuous process until it is believed that benefit tracking for the MEA is no longer necessary. A finding from the study was that digital projects such as MEA projects are still new to organisations. This makes up-front targets problematic as there is no reference point for understanding the issues that could arise. In the Risk MEA project after implementation, the original target tracking was stopped, and a completely different approach was adopted to drive benefits. The reason for this adjustment in targets was explained by the business change manager, "At one point we revised it a little bit, I guess where we are now, we

completely revised it differently. We do still believe in the value of the app; it is just having the courage to wait for it to happen. In the digital world, I certainly believe that if you think of agile, think of learning your way forward; you need to be able to change your approach. You don't know stuff. This is a completely new app. Nobody has done something like this. It is complex, and nothing exists like this out there. It is something different, so we don't know what we don't know. Then to say ok we took a stab at it and then admit we got it wrong and then to change it". The tracking of targets gives direction to the benefits realisation and action can be taken post-implementation to ensure benefits are realised as was planned.

### 7.6.2 Update knowledge repository

Once the project is closed off, the management of benefits must continue until it is agreed that the value from the MEA has been realised. Until this time, on-going benefit management and management of risks will take place. It is important that these risks and their mitigation be captured in the knowledge repository so that they are not lost, and other MEA projects can benefit from the learnings. Benefits are realised over several years and not necessarily as the MEA is implemented. This point was made by the business change manager, "The investment committee was comfortable for us to make changes to drive usage but they still ask how many assessments have been done? They get impatient. They are expecting the tangible benefits from the business case in that financial year. They need the courage to wait for benefits over financial years." This implies that for as long as benefits are managed, the benefits and any risks that might threaten the benefits realisation need to be captured in the knowledge repository so that they are not lost as the people that were involved with the MEA move on to other things.

### 7.6.3 Manage user adoption

If users do not use the MEA then none of the benefits from implementing the MEA can be realized therefore adoption is the most important objective. MEA adoption is a slow process that needs to be managed mostly with product champions, change management, training, and support for users. Even though the users might be mandated to use the MEA, this does not guarantee widespread adoption. This challenge was noted by the change manager in the Risk MEA project, "The brokers aren't using it because nobody is driving them to use the Risk app."

Ownership for driving adoption needs to decided on upfront when the project starts and once the MEA is implemented, there needs to be on-going management of the adoption. This challenge with the Risk MEA emerged after implementation and it resulted in poor adoption which threatened the benefits realization of the app. The manager explained, “They (the Survey department) wanted the app. They are responsible for the survey department but they don’t see it as their job to drive the usage of it”. Clear ownership of adoption ensures that someone is responsible for the adoption targets. If this is not actively managed the MEA will potentially not be a success.

The literature shows that an individual’s adoption of innovation depends on more than just their attitude, it is influenced by organizational policies, approaches and actions (Talukder, 2012). Organizations need to provide facilitating conditions , which includes providing support that would influence individuals to use the innovation (Talukder, 2012). Organizational influence motivates employees to adopt an innovation (Talukder, 2012). It is therefore essential that on-going effort to drive adoption of a new MEA is assigned to someone after MEA implementation. Owners of project deliverables are the beneficiaries of the benefits so they should also be the champions of the use of the product (Winch & Leiringer, 2015).

## 7.7 Limitations

BM is a maturity capability in an organisation and organisations apply BM processes in varying degrees to their projects (Ashurt et al., 2010; Marnewick, 2016). The failure of the projects in this study to adhere to the proposed BM process might not be experienced in other cases in organisations with more mature BM where this process is tested. BM is a skill and project participants need to have experience with BM to be proficient at it. If different individuals were included in these projects, the outcomes might have been different. Additional action cycles could further refine this BM process however because this study is part of a PhD thesis, time constraints limited the possibility of more action cycles.

The BM body of knowledge is segmented in predominantly four areas; BM frameworks and methods in practice, BM users, BM governance, and BM context (Hesselmann & Kunal, 2014). This study only considered two dimensions of BM those being the method and the context. The user adoption and governance dimensions were not investigated or addressed in this study which is a recognised limitation. The descriptive method of analysis used in the study is

also a limitation. Structural equation modelling can help understand the causal relationships between the factors that are the pre-determinants of BM adoption, how they work, and why they do so (Hesselmann & Kunal, 2014).

## 7.8 Summary

The final analysis of the BM process followed for the two AR cycles in this study found that the process as proposed in the BM model was not successfully implemented. The biggest problem was the lack of participation of the stakeholders during the later phases of the project. This finding is not unique to this study and the literature (Coombs, 2015; Marnewick, 2016; Lin & Pervan, 2003; Lin et al., 2005; Waring et al., 2015; Zwikael & Smyrk, 2011; Zwikael, Chih & Meredith, 2018) confirms that organisations do not implement BM optimally and often don't apply all of the steps in the process. The finding of this failure in this study highlights that focus should be placed on ensuring that the stakeholders are adequately trained in BM and stay committed to the BM process until the benefits are realised. Adherence to best practices for BM depends on the organisation's maturity (Lin et al., 2005; Marnewick, 2016) and on the importance placed on projects irrespective of the size of the financial investment. In the case of this study, smaller projects such as MEA projects were deemed too small for heavy governance by the project office. This could be as a result of immaturity, but it could also be less important in the bigger project portfolio's importance and therefore attracts fewer resources for BM. This finding is contrary to that of Marnewick (2016) who believes that all projects, irrespective of size, should follow a BM process which realises benefits for the organisation. He argues that all projects should deliver benefits in excess of the resources utilised. When evaluating this organisation's benefits realisation competency against the Ashurst and Hodges (2010) framework in Table 1, this organisation appears to be at the basic level. However, this is not the case for big initiatives which makes the benefits realisation competency context specific in this case. The identification of benefits was improved because of the benefits template created in this study. However, all measures such as poor benefits realisation skills amongst project stakeholders, continuous benefits realisation reviews, incremental delivery of project benefits, and developing leaders of benefits realisation were all absent. The question of whether this level 1 basic competency for benefits realisation is a problem depends on the organisation. Ultimately senior management influences the BM

competency and influences its importance in ensuring that benefits are delivered in projects. Many organisations still evaluate projects by their efficiency which evaluates whether the project was delivered on time and within budget and not by the benefits delivered (Serra & Kunc, 2015). This study concluded that in some organisations this is perhaps an acceptable way of evaluating smaller projects and not necessarily because of a poor BM capability.

Creating a list of benefits from which the stakeholders can choose so that a comprehensive list is compiled at the start of a project is an important step in the right direction for BM in an organisation. The literature (Zwikael, Chih & Meredith, 2018) confirms the importance of specifying benefits at the start of a project which can be measured and tracked throughout. Project teams tend to focus on benefits when creating the business case but once project funding has been approved, the focus tends to fade away (Doherty, Ashurst & Peppard, 2012). Identifying the risks to benefits realisation is also important so that steps can be taken to prevent the obstacles from hindering the realisation. The template created in this study can assist in building strong and realistic business cases and preventing the risks to the benefits being realised. By having realistic benefits in the business case which are not over-stated, the probability of the MEA realising the benefits becomes more likely which gives MEA projects more credibility for future endeavours.

Terlizzi et al. (2017) argue that traditional BM process models do not work in Agile projects because these types of projects deliver value every four weeks because this is the period it takes to implement a new version of the software in production. They argue that it is impractical to create a new business case with this frequency. They suggest that organisations should establish an IT BM specific for Agile projects with simple business cases, quick approval and small committees. The BM process proposed in the study can potentially be used as a solution to their suggestion. Having a BM process with very light governance, a strong business case which includes realistic benefits and targets, assigns benefit owners, identifies and manages possible risks, and builds organisational knowledge for future projects could be the solution for smaller software development projects such as those for MEA. The process of identifying benefits and risks for MEA is provided to help construct a comprehensive benefits business case.

# 8. Benefits of MEA Discussion

This chapter will provide the answer to the second question posed in this thesis namely:

**Which benefits can be realised by an organisation in the short-term insurance industry when utilising MEAs?**

The benefits to be realised from the use of MEAs in the insurance industry will be dependent on the business process and context in which the MEA is used. The MEA benefits identified this study relate to the assessment of risk and claims business processes. While these benefits may be specific to the assessment and claims processes, the general category of benefit could still apply to other processes.

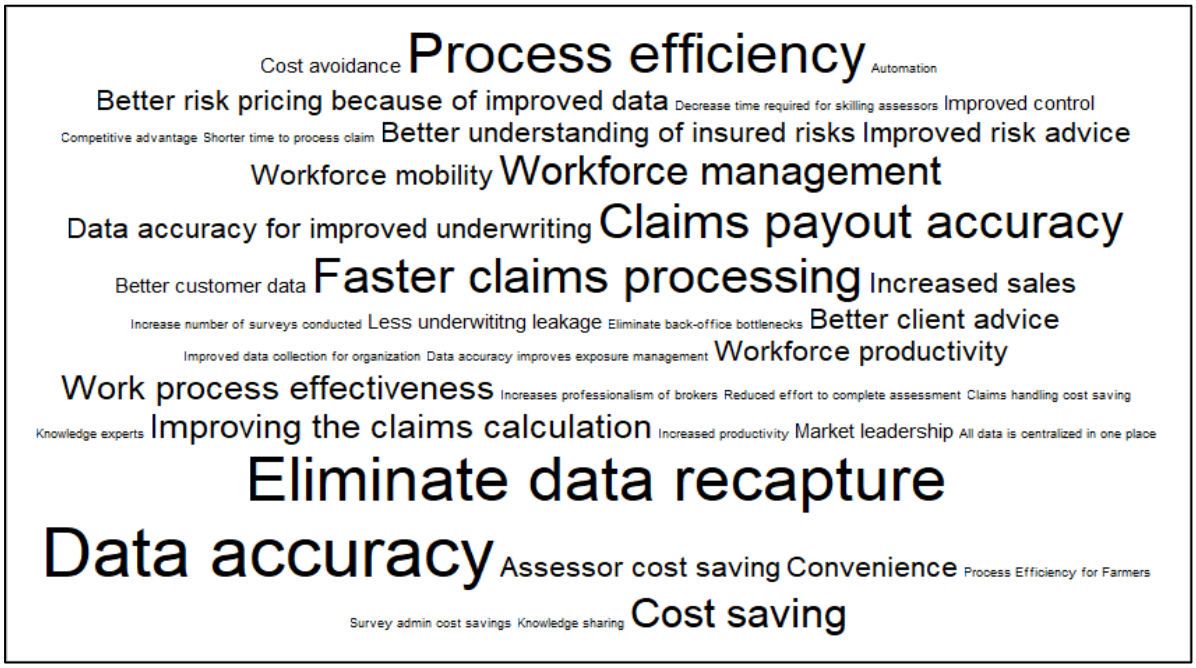


*Figure 10: Benefit Frequency Cloud*

The benefits cloud in Figure 10 displays the benefits identified, and the size of the text represents the frequency with which these benefits were mentioned in the data analysis. The occurrences of the counts from the data analysis, which is the basis for these cloud diagrams, is found in Appendix 5. *Appendix 11* shows the recipient that benefits most from the benefit. Each of the benefit categories and specific benefits will now be explained in further detail.

## 8.1 Process efficiency

Efficiency benefits are derived by automating data capture on the front as well as the back-end of processes. MEAs save time for the user by simplifying the completion of documents.

Having the input data available as drop-down lists saves time and effort. A digital form also makes note taking much simpler and easier to find for reference at a later stage. MEAs allow for documentation and data capture to be completed by the user and the completed reports uploaded to a repository for back-office staff to consume. Other efficiency benefits are also found which are listed below. Efficiency benefits from mobility are validated in the literature (Hoos et al., 2014; Giaglis, Rangone & Renga, 2006).

- MEAs enable a faster turn-around time for processing because of the automation of document completion and fewer steps to completion.

*"In the paper process, they go back to the office then fax it to the farmer. Now it happens right there. Immediately."* (PO1)

- By reducing the length of time it takes an assessor to complete a survey or assessment, more assessments can be done by each assessor which creates the benefit of increasing the number of surveys and assessments that can be done in a period.

*"At the moment we only have survey 10% of our physical risks. Whereas now it will be increasing the sight of these new risks." (PO3)*

- Underwriting leakage occurs because bad risks are not identified which results in losses for the insurer. The benefit of reducing underwriting leakage is a revenue benefit related to improved efficiency.

*"The improvement in underwriting leakage saves us money. With that benefit alone, we have enough to build the business case." (PO3)*

## 8.2 Cost Saving

The improved efficiency and effectiveness of MEAs result in cost savings for the organisation. The cost savings brought about by mobile services through productivity improvements is described in the literature (Liang et al., 2007; Picoto et al., 2010) and is similarly found in this study for MEA.

- The accuracy of the claim pay-out is standardising because of the variables considered during the assessment. The MEA ensures a standardised method of assessing claims.

*"The core benefit is the accuracy of claims." (DM1)*

*"The accuracy may mean we pay out less in claims, assuming you force the rules. For example, on the assessment app, based on the growth stage, certain damage types apply, and others don't apply. If you do it manually, you can add it on paper, and it may not be picked up. In this*

*case, the system stops you from it so it is very specific benefits plus it keeps all this data together." (DM1)*

- The MEA allows for improved calculations based on the improved data collection. This leads to cost savings for the insurer and more equitable pay-outs to clients.

*"We using a different calculation method which should be more accurate to both sides." (PO1)*

- A further efficiency benefit is a reduction in the cost of assessing risks and conducting surveys brought about by accurate time-tracking and reduced re-work.

*"There were only two benefits to this; the one is saving to the assessors' costs, and the other is the saving on the processing costs." (PO1)*

- The cost of handling claims and processing them is reduced by using the MEA which creates another cost reduction benefit. By automating certain steps in the process with the MEA, the cost is reduced.

*"This is an efficiency, lower handling costs. It lets you complete a faster cycle." (DM1)*

- The MEA enables improved accuracy of underwriting which ultimately allows for lower costs to both the client and the organisation.

*"We're using the app because we want to collectively have a better understanding of client's risk" (PO1)*

## 8.3 Eliminate data recapture

This is a major benefit of MEA. Whereas manual paper-based processes required double capturing in a back-office, with the MEA, the data is automatically uploaded to the back-end systems which eliminates the need for additional staff. This also improves data quality because data is captured at the source and there is less opportunity for capturing errors or lost data. This benefit is confirmed in the literature by Scornavacca and Barnes (2008).

- By uploading captured forms from the MEA to the server, the need for recapturing is eliminated which creates a cost benefit by reducing staff needed for the process. Also losing paper documents is common which requires revisiting the client. By automating the upload of the data, this problem is eliminated which saves costs.

*"They worked out they would get two benefits, no more back- office capture, and the paper won't get lost." (DM1)*

## 8.4 Effectiveness and productivity

By standardising the creation of assessments and claims documents and processes, the MEA allow for greater effectiveness in these processes. The more robust process with the MEA reduces underwriting leakage by ensuring that the risks are priced appropriately, and this is done with improved data. Pavin and Klein (2015) also found this to be a benefit of mobile apps.

The creation of digital documents rather than paper forms increases productivity. It is faster and more efficient to use the MEA for these processes. The data is richer, and the documents are uploaded to the back-office system automatically. This frees up time for the user to do other tasks which improve their productivity. Pavin and Klein (2015) confirmed increased productivity as a benefit from mobile apps.

- MEAs increase the effectiveness of the work done by assessors and surveyors.

*"The Agri app was done to make the relationship managers more effective." (DM1)*

*"There are immediate benefits, productivity benefits, efficiency benefits, and then there is better control." (PO2)*

- MEAs increase productivity and effectiveness by allowing users to be mobile. Being able to work while on the move and offline allows people to be more productive.

*"That is a huge benefit being able to work offline and not have to be connected. It is a huge productivity benefit." (HD)*

- Another benefit related to workforce productivity is being able to assign work based on the user's location. Location context enabled by the smart device makes the users more productive.

*"If you know there was a storm in the region. You will know I have this property that is also in the same vicinity and you can give it to the assessor in the same area." (DM1)*

## 8.5 Organisation control

The MEA improves the control which the organisation has over the assessment and claims processes. Firstly, by improving the accuracy of the risk information because the data is more targeted. The location data retrieved from the device allows for far more accurate underwriting of risks of that location. The improved rating of risks allows for better pricing of risk and creates a more accurate assessment of the kinds of risk the organisation is exposed

to. By educating and informing clients of the risks to which they are exposed, the risks can be mitigated and which potentially prevents claims. Another benefit of the MEAs to the organisation is that because they standardise the assessment process, more brokers can do their own assessments which means more assets can be surveyed. With more surveys being carried out, the organisation has a clearer understanding of their exposure to risk. If the risks are better understood, the organisation can apply underwriting actions and clauses to more clients which improves control. Improved organisational control was identified as a benefit of mobility by Chen and Nath (2008).

- Improving data collection and risk knowledge gives the insurer better leverage to gain a hold on the risk profiles, therefore, creating control for the organisation

*"We have a lot of claims because we don't survey most of our risks. The app allows us to understand what we are insuring and we can improve our risk profile with the improved data. This gives the company more control over what we do and don't cover. It is about the control we get from the app now." (DM1)*

## 8.6 Workforce management

The MEAs allows work to be assigned electronically and it also makes it easier for the manager to monitor all worklists from a dashboard. Having an automated appointment management system gives greater workforce control and makes the process of assigning work more efficient. This saves time both for the company and for the user of the MEA.

Task assignment and tracking are made much simpler with a MEA. The mobility and location awareness of the user makes it simpler to allocate job tasks to the user based on where they are situated. Assignment of work is a major benefit of MEAs.

*"For me, there is also a lot more improved management of the process and tracking. So, for example, you can track all tasks in terms of assigned new, accept, completed, all status stuff. For me, the benefit here is things don't get missing. On paper, things would get lost. There is visibility of work. The documentation doesn't get missing because it all uploaded. There is also better resource management. Because you doing that through the portal, the assignment of tasks through the portal you actually have sight of how many requests you have." (PO2)*

*"There is also better resource management. Because you doing that through the portal, the assignment of tasks through the portal you actually have sight of how many requests you have." (PO2)*

The MEA gives the organisation much better control over the workforce by being able to better track their time on tasks and the number of jobs completed. This becomes a cost saving because of increased productivity.

> *"I think you also have more control by the fact that they claim the time and the expense for travel. By knowing where you can control the cost because you can ask, why did you take so long?" (DM1)*

Because the MEA automates much of the manual calculation and prompts the user for necessary data, it requires less skill from the user. This benefits the organisation by reducing the amount of time it takes to train staff.

> *"Faster skilling up of assessor resources is a big benefit." {PO1)*

## 8.7 Increased sales

An intangible benefit of MEA is the opportunity of increased sales because of other benefits originating from the use of MEAs. In this case, the risk assessment and analysis of client risk can lead to an opportunity to up-sell. This was explained by a participant:

*"Benefits related to let's call it the adjacent processes, for example, we did the risk assessment, but we have an opportunity to feed into the new business process by asking,' Would you like us to quote based on what you've said?'. You send it to the contact centre." (DM1)*

*"We can probably write more policies because we know what risks we are exposed to." (HD)*

## 8.8 Improved customer experience

The MEA allows for improved customer experience. Also, because the assessor or broker has the client data readily available to them, they can provide a better service and offer advice immediately rather than having to go back to their office and then contact the client after their meeting. Better information on the client also allows for better premiums possibly which benefits the client. The MEA creates an opportunity to educate the client about risk mitigation which is a longer-term benefit for both the client as well as the organisation. With standardised assessments, it improves transparency into the assessment process which

makes it easier for the client to understand how their premiums are calculated. Basole (2009) identified this benefit of improved customer service from the use of mobility.

"*I'm also going to put customer and broker experience improvements accruing from the app.*" (HD)

- The improved efficiency and faster turnaround times created by the use of the MEA creates other benefits for the customer.

*"What we can't see is the improvement that it brought along for the farmers. What's happens is if we process the emergence report which is the first report of the process. He gets financing. He gets additional financing to carry on his farming practice. If we are late with the report, then he doesn't get his finance. If that is quantifiable, we don't know what happens out there." (PO1)*

- Immediate reporting and generation of letters of advice from the broker assist the client to be more proactive in risk mitigation.

*"We are clear the reason we are doing this project is that we want to have a better understanding of client's risk collectively, we want to get them to proactively advise clients how to reduce their risk which is good for everyone." (DM1)*

## 8.9 Data collection and accuracy

Tasks can be linked to a diary which makes time management and appointments much more accurate. The contact details and address information can be fed directly to the calendar or booking system on the device, so it is all automated. The ability to easily take photos while doing assessments or claims and making those part of the reports gives a much more accurate view of the assets being insured. Having lookup values in the MEA also creates more accurate data and more correct calculations. Manual look-ups lead to errors which can lead to incorrect calculations. MEAs solve these data issues. Vuolle (2011) also confirmed data accuracy as a benefit of mobile apps.

- Improved client and risk data allow for better pricing of risk because of more accurate risk assessment. This improvement of data quality is enabled by the MEA.

*"If the quality of the data goes up the exposure management goes up. You can price your risk correctly. The data accuracy allows you to price risk accurately because of correct occupation and location." (PO3)*

- The exact location of the premises can be found with the geo-location capability and mapping on the device which makes getting to clients much simpler. The risk data related to specific geo-locations is more accurate in a MEA which makes risk rating better.

*"The thing is if you want to be able to price better and thereby influence your loss ratios, this stage of the year is actually about acquiring location data which will feed into a process when you put your special tools and things in there. This is laying the benefits over there, laying the ground-work, doing the ground-work for benefits realisation that sits somewhere down the road." (DM1)*

- MEA make collecting data and storing rich data such as photos and voice recordings in a central repository simpler than manual processes. The automatic upload of rich media from a smart device makes data collection far simpler.

*"It is important to have Location, e.g. Google maps and photos stored in a centralised place" (Steering committee notes)*

The MEA creates an opportunity to create a risk repository of data which can be used for mining insights and better rating. Paper-based repositories are much more difficult to mine whereas if all the survey data is in a single warehouse, the software can be used to identify trends and gather insights. This data collected can also be used in other processes such as sales. Geo tagging creates a rich data source for risk ratings per area or location. The benefit of data collection was confirmed by Campos et al. (2016).

## 8.10 Competitive advantage

MEAs can create a competitive advantage especially if the organisation is the first to market with their tools. The MEA generates conversation in the industry if it adds value to the users and the increased awareness of risk benefits the organisation but also the entire industry. When clients are aware of the risk, it benefits everyone. The MEA also entrenches brand awareness for the organisation especially if they are the first to provide the tools in the market. It gives the organisation a market leading image which is good for the brand. Competitive advantage from mobility was confirmed by Groger et al., 2013)

- MEAs provide insurance tools which can give the insurer an advantage over the competition in the marketplace.

*"We can also position InsureUs as a leading insurer from a surveying aspect. As an industry leader in surveying. They can't keep up with us." (PO3)*

*"Nobody else does surveys like this in South Africa. It has a reputation benefit." (HD)*

*"Brokers feel it is a fantastic tool; they feel it is a differentiator in the market." (PO3)*

- By having MEAs which none of the competition has, it creates brand awareness and brand loyalty for the insurer as a superior brand.

*"The second side was BankSA had something. We need to be at least better than (a competitor bank), and we have an opportunity to streamline that process with the app." (PO3)*

- Because better risk data is collected through using the MEA, this gives the insurer better knowledge of insured risks and creates the benefit of knowledge leadership.

*"Because now from what we are picking up from the data, we can write media articles related to the topics." (PO3)*

- Using the MEA gives the brokers and other users a more professional image which creates a competitive advantage over other insurers. The MEA enables the broker to offer a more professional service. The tool gives the broker credibility as it provides a professional assessment.

*"It is used to improve the professionalism of the industry. The benefit to InsureUs is that because it is integrated with InsureUs it becomes easy to place the business with us." (PO3)*

## 8.11 Convenience

The convenience of using a MEA creates several benefits. A repository of documents can be kept on the device for easy referral. As an example, the broker may keep his client's documents on the tablet device which makes for easy access. For users that are mobile and out visiting clients for most of their work day, having a diary on the device linked to worklists creates an efficient and easy way to manage their time. Mobile devices also have apps which assist with driving directions which makes getting to clients simpler. Features such as geo-location which is standard in mobile devices make it convenient to geo-tag premises or a location for assessment. Rich data can then be sourced for that specific location. Previously this sort of accuracy was more difficult. More accurate data allows for better risk scoring and rating which is a benefit to both the company and the client as the premiums are more accurate. The benefit of a MEA in the assessment and claims process is that it allows for a

richer report to be created with photos and notes included. This was also possible before but not as conveniently and easily. Access to client data as the process is being completed on the tablet device creates time savings and makes the process much simpler. This sort of data would not be as readily accessible in a manual process, and the volume of data carried on the device is much greater which makes it simple for the user. Convenience as a benefit of mobile apps is confirmed by Stieglitz and Brockmann (2012).

The ability to work remotely and away from the office on client premises is convenient for the users of the MEA.

> *"That is a huge benefit being able to work offline and not have to be connected is a huge benefit." (DM1)*

## 8.12 Improved knowledge sharing and communication

The inherent functionality of the devices such as email and chat applications make it easy to add functionality to the MEA which allows for easy communication. Sending messages and documents to the client or back-office is very simple which saves time and effort for the user. This benefit of MEAs was also confirmed by Pavin and Klein (2015).

*"Now yes you can get it on your laptop but with this app, he can sit, and while he is waiting for his meeting, he can send some of his emails." (PO1)*

## 8.13 New work practices

MEAs allow for new opportunities which arise as unintended benefits from using them. Vuolle (2011) identified new work practices as a benefit of using mobility. Indirect benefits arise from using MEAs in existing processes. This was explained as follows:

"I think it is more that a lot of the times something gets built in one place but the benefits might accrue somewhere else. For example, take the client app again. You build it from a marketing context, but there is a claims benefit." (HD)

## 8.14 Viability

Viability speaks to the societal and organisational readiness for mobility. Viability is assessed by evaluating the readiness of the society and organisation (Liang & Wei, 2004). It is a check

whether the technology will fit into the cultural behaviour of the organisation and whether the societal aspects such as infrastructure can accommodate the technology.

*"If our staff don't have the tools and don't understand apps and don't understand the value that it brings then how do you expect them to play the role to bring the others up to speed? It's a combination of having the tool and the willingness to embrace this as a better way of working and wanting to sell it to their constituent brokers. We don't have that strong technology culture and digital; I don't know the right terminology. You need to build a digital culture in your people." (BCM1)*

*"The risks described are very real and should not be underestimated. The resistance to change, i.e. using an electronic device to do business which previously required a lot of paper- work and manual action is a threat to a large number of users." (BCM1)*

## 8.15 MEA Benefits Model

The model in Figure 11 represents a model of benefits which can be delivered by MEAs and impact positively on the business performance. The benefits are separated into those with an internal view and those with an external view. The literature discusses the existence of two formulations of performance: efficiency and effectiveness (Melville, Kraemer & Gurbaxani, 2004). Efficiency emphasises an internal perspective defined by such metrics as cost reduction and productivity enhancements. Effectiveness, on the other hand, describes the achievement of organisational objectives about an organisations' external environment and competitive advantage, is the manifestation of this achievement (Melville, Kraemer & Gurbaxani, 2004).

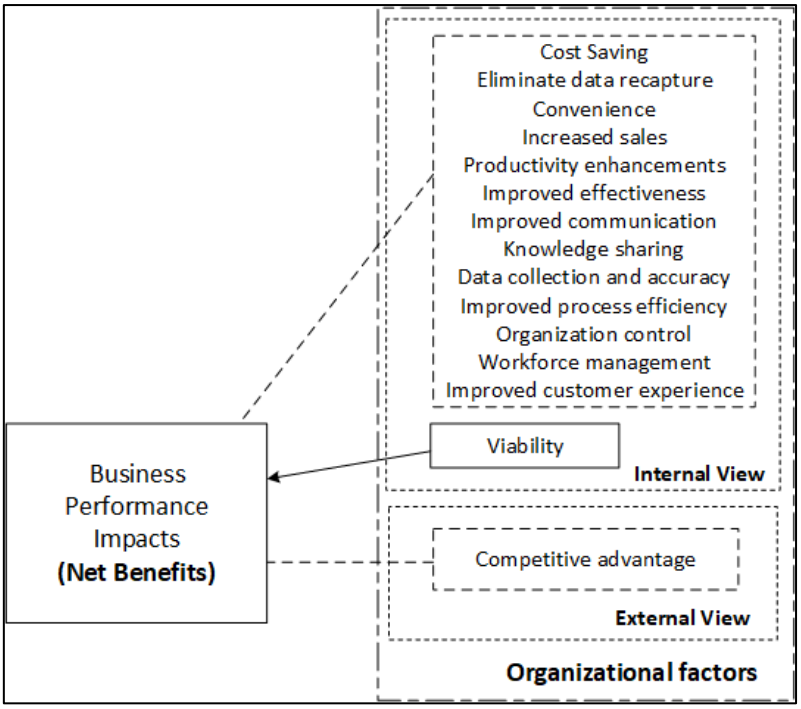


*Figure 11: MEA benefits model*

Viability speaks to the fit between a technology and its associated users. Viability is assessed by evaluating the general economic environment and social infrastructure as well as the readiness of the organisation (Liang & Wei, 2004). It is a check whether the technology will fit into the cultural behaviour of the society and the organisation. For example, mobile money has been very successful in Kenya but poorly adopted in South Africa. Viability assessment, therefore, needs to include three aspects; economic, organisation, and society (Liang & Wei, 2004). The economic aspect evaluates whether the technology is cost-beneficial and whether it reduces the user's transaction cost and has a positive return on investment. The organisation aspect assesses whether the users are both able and willing to use the technology? The societal aspect evaluates the maturity of the environment in which the technology will be used. This covers issues such as the penetration of tablets and mobile apps as well as the wireless connectivity in the areas where they will be used such as on farms. The viability of MEAs in this study was discussed in a previous chapter, and the finding was that the organisation did not have a proper strategy for providing mobile devices which affected the adoption of the MEA. The benefits which were found from using MEAs have the potential to impact business performance positively and were also discussed previously.

## 8.16 Limitations

The limitations of this study are that it is a single organisation case which might not give a clear understanding of the generalisation of the findings to other contexts. The study was cross-sectional and not longitudinal which resulted in only the immediate benefits being reported and not those which would manifest over a longer period of use. Benefits for information systems are realised over several years (Lin et al., 2005) and as such could imply that further benefits will surface as the MEA in this study are used for longer periods. Further research can identify benefits from other industries utilising MEAs in other business processes. The MEAs in this study were used in the claims and assessments process and other benefits might present themselves in other processes.

## 8.17 Summary

The literature (Marnewick, 2016) shows that benefits are poorly defined and described in business cases. The top three priorities for improving benefits realisation in projects are evaluation and review of benefits; identifying and structuring benefits; and benefits delivery planning (Ward, Hertogh & Viaene, 2007). The relevance of this study is that it improves the understanding of how benefits from MEA projects can be realised for organisations. Identifying realistic benefits which can be realised from MEAs is a start for improved BM. Insurers are under pressure because of increasing competition and as such need to find efficiencies and improved data for better underwriting. This study showed that MEAs create the efficiencies that are needed in this industry along with many other benefits. The contributions from this study are to both practice as well as theory. The practical contributions are for organisations to use the benefits identified to build robust business cases for their MEA. The theoretical contribution is to extend the body of knowledge in the benefits realisation field for this new type of information system.

The benefits identified in this study relating to the use of MEAs in the short-term insurance industry are similar to the benefits already identified in the literature for mobile services. Benefits such as an improved image for brokers and the types of improvements in the specific business processes such as the improvement in the quality of data in the claims process are

context specific for insurance. Measurement of benefits should include both tangible and intangible benefits (Marnewick, 2016).

Understanding the benefits is the first part of a BM process, companies would still need to decide how each of these benefits will be measured for success and who will be responsible for tracking their progress to ensure the benefits are realised from MEA projects.

# 9. Risks to MEA benefits Discussion

This chapter will discuss the findings of the third question asked in this thesis:

**What are the risks that prevent the realisation of the expected benefits of utilising MEA?**

The risks which were found to impede the realisation of benefits from the use of MEAs in this study are displayed in the word cloud in Figure 12. The figure also displays the mitigating actions for some of the risks that were found. The text count supporting this word cloud is found in Appendix 5. *Some of the risks to the success of the MEA were identified in the survey study which was part of the quantitative data analysis. These risks validated and extended the risks identified as part of the AR cycles.*

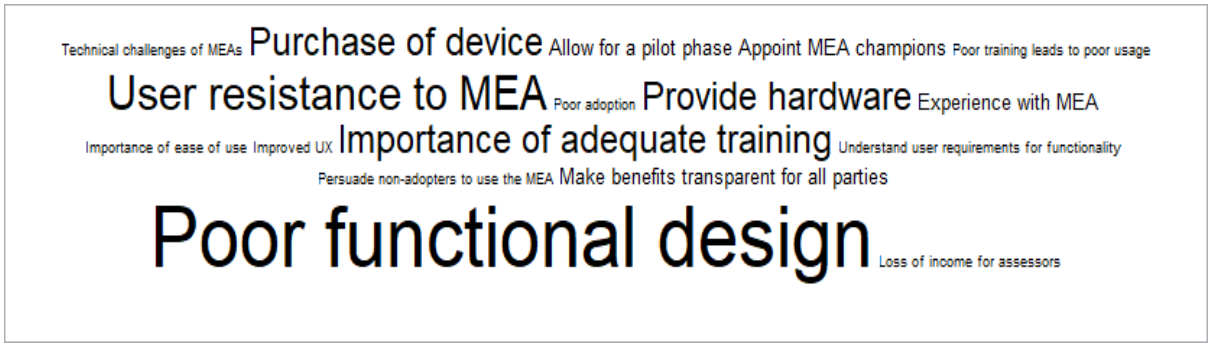


*Figure 12: Risk Frequency Cloud*

Each of these risks and the mitigations will now be discussed in further detail.

## 9.1 User resistance

User resistance to change their old work practices leads to poor adoption of the MEA which can impede benefits realisation. This resistance to change was explained during a project meeting:

*"Some feel they are good in the method they follow and don't see how the app can help" (Meeting Minutes)*

*"Most have a method which is generally dependent on experience, but they follow different methodologies, e.g. using a check list" (Meeting Minutes)*

There are several mitigating actions to this risk. Product champions were found to be the most useful way of improving user adoption of a MEA. In this study, the action taken to address negative user sentiment towards the app was to include brokers in the pilot phase that were identified as not being too interested in using the Risk MEA. When users are new to MEAs,

they look to their peers to form opinions about the MEA and having MEA champions can help build enthusiasm and excitement for a MEA. Champions are also able to assist in training new users. It was also found to be useful to identify the users with negative perceptions about the MEA and help them to understand the benefits to them and the company. Positive word of mouth helps drive adoption when people refer to their peers to form opinions about the MEA. It is also important for users to believe that their complaints and concerns are being heard and dealt with by someone. Feedback mechanisms need to be in place so that issues with the MEA can be channelled back to the product owner and dealt with appropriately. This feedback mechanism also allows for improvements from the users to be fed back into the development team for benefits realisation. Winning over negative users is another approach to changing resistance. These new converts create positive role-models for other sceptical users which can have a positive adoption influence. The challenge of addressing resistance to change was explained by a participant as;

> *"It's a combination of having the tool and the willingness to embrace this as a better way of working and wanting to sell it to their constituent brokers. We don't have that strong technology culture and digital focus; I don't know the right terminology. You need to build a digital culture in your people."* (DM1)

The organisation must promote the positive benefits of a digital change for users to embrace the changes brought about by MEAs. Having knowledgeable MEA champions is a start. Employee resistance to change as a risk to benefits realisation is validated in the literature by (Nah, Siau & Sheng, 2005; Rangone et al., 2007)

## 9.2 Provision of devices

Not providing mobile devices to the users can lead to user resistance to using the MEA and the consequential decrease in expected benefits from that use. The lack of adoption was noted by the participant:

> "*We not buying the equipment. If we gave everyone a tablet, they would be much more enthusiastic."* (PO1)

This finding of the impact on adoption from the company's wiliness to fund the technology is validated in the literature by Kim (2008). In this study, the organisation decided to subsidise

the smart-devices which then mitigated this risk from having an impact on the adoption of the MEA.

## 9.3 Poor adoption

A lack of user adoption of the MEA can erode the expected benefits from the MEA's use. There is not only a threat to resisting the use of a MEA which replaces a manual process, but if a MEA creates an entirely new process which is rejected by the users, then the expected benefits from deploying the MEA will be under threat. User rejection of the app was discussed in a steering committee meeting, and this was the feedback,

> *"Some brokers don't do a risk assessment and do not want to do it at all."* (PO2)

Adoption is as a result of a concerted effort to ensure users use the MEA. Simply releasing the MEA and assuming adoption will take place is a mistake. There needs to be an adoption plan where MEA champions are identified and tasked with driving adoption to specific targets. These targets must be monitored and managed if adoption is to be successful. Using another stakeholder to drive adoption such as Marketing assists with creating awareness and creating hype around the MEA. This can create excitement amongst users and also improve adoption. Creating MEA champions that promote the MEA within the user community was identified as a mitigation to poor adoption.

> *"Identify 14 super-user relationship managers to be present at the sessions to give a demo of the App (1 in each region)"* (Meeting minutes)

The need for champions to promote a mobile app is validated in the literature by Borg and Skidmore (2015). The literature (Nelson, 2007) frequently identifies the need for champions to promote information systems to improve adoption.

## 9.4 Poor functional design

Poor functional design threatens benefits realisation if the MEA does not facilitate the user's job function as they expect it to. Having insufficient functionality in the MEA which results in extra effort to get a job done will lead to lower user adoption and lack of enthusiasm towards the app.

*"There's a gap between the end user and us. When we are doing mobile, there shouldn't be a gap. Early in your process, you should be saying before I design a new assessment let me go on a trip and see first-hand and you make notes. We do it late which puts our benefits at risk."* (DM1)

If a proper benefits analysis is not done which should identify functions in the business process which can be improved with a MEA, then the risk exists that a MEA will be created which does not benefit the user and therefore threaten its use. Detailed analysis of the business process which will use the MEA needs to identify which functions the user performs in carrying out their job so that these can be included in the MEA. Additionally, the design of the MEA needs to consider additional features of the device such as taking photos and writing on the tablet so that the business process is enhanced and not merely transferred from paper to tablet. The MEA should add more value to the existing process to make it useful.

To get buy-in from users for the MEA which ensures use and adoption, users need to feel as though they are part of the process of designing and developing the MEA. Also, by involving the users from the very start of the concept, functionality mistakes might be avoided if the users are asked what they want and how they would use the app? Holding focus groups at various stages of the creation of the MEA can mitigate adoption mistakes and ensure more successful use of the final product.

Understanding how the users work and what the process to get a job done entails ensures that the MEA is usable and functionally rich. The mitigation to this potential risk was described below;

*"You need to take into account the context of the end user and even if there is going to be benefit in using the app you need to think about how they use the app and how it is going to be integrated with the other things that they do and how they practically going to do it."* (DM1)

*"You need to look at bringing other functionalities in so it all sits as a bundle together, and they can just use the app, they don't have to use app and paper."* (DM1)

System functionality relates to the TAM construct of perceived usefulness of a system and perceived usefulness is a direct determinant of whether a system is adopted (Davis, 1989). Perceived usefulness as a determinant for successful adoption has been tested for decades in

adoption studies and is validated by this study. Insufficient MEA functionality leads to a low perception of usefulness and therefore acts as a risk to benefits realisation because of lack of adoption.

## 9.5 Poor training leads to poor usage

Having product champions that can train users and explain how the MEA replaces the manual process and what the benefits are in using the MEA will improve perceptions about the MEA and positively influence its adoption. It is necessary to ensure that the introduction of the MEA is supported with adequate user training else the enthusiasm to use the app will be negatively impacted. Sufficient training with the appropriate trainers needs to be planned before releasing the MEA to the users otherwise the use will be impacted and benefits affected. The importance of change management was described;

> *"In all the mobile projects we haven't spent nearly enough time or effort on the change management. You can argue mobile apps don't need change management, but I think these enterprise apps need change management. If we want to realise these benefits in mobile apps, we going to have to step this process up." (BC1)*

The lack of mobile readiness and lack of understanding of mobile devices which relates to the need for training on MEAs has been validated in the literature by Basole (2007) and Nah et al. (2005).

## 9.6 Technical challenges of MEA

Because the MEAs are used for mobile workers, connectivity is a challenge, especially in remote areas. The MEA needs to be designed in such a way that offline work is possible and once connectivity is restored the offline work is uploaded to the back-end. If technical challenges such as this are not mitigated, usage of the MEA will be low, and the users will revert to the paper-based process. This point was explained by a participant:

> *"Where we had a lot of challenges was the take-on of the app and the user downloading it from the store. I'm not completely happy with the online store. The other challenge is a big challenge. I suppose we knew it upfront but the data, the quality of the network, speed. So, for them to download in Bloemfontein or some outpost took a lot of time, so those are learnings."*

The technical challenges of mobility were validated previously by Stieglitz & Brockman (2012).

## 9.7 Lack of understanding of mobile devices

A risk to adoption can be a lack of understanding of how to use the mobile devices on which the MEA operates. This is more of an issue with an older generation of user. The change from manual paper processes to digital ways of working can be impeded by the user not understanding the functionality of the technology. This risk can be mitigated with proper user training to ensure proper use of the MEA and to make the user comfortable to use the MEA. Additionally, when the MEA is being considered, it is important to understand who the users of the MEA will be so that appropriate measures can be taken to train the intended user base.

> *"The other issue is that most of the assessors are older people and 50 plus which are not technologically savvy, so they don't want to work with tablets." (PO1)*

The risk created by the lack of understanding of mobile devices has been confirmed in this study and previously identified by Rangone et al. (2007).

## 9.8 Organisation productivity at the expense of broker productivity

It is important for the MEA not only to deliver benefits to the organisation but it must do so for the user community also. If this is not done, the adoption can be poor therefore impacting on the expected benefits. This point was explained by the head of digital and the devlopment manager:

> *"Productivity, I think for me it might be increasing our productivity perhaps at the cost of the broker's productivity, but that remains to be seen. We get our coverage up, but the broker is going to spend the time to do it when he should be selling."*
>
> *"The other thing is it's all good and well getting the targets to be set by the business. The target audience should also believe in the value proposition. We should make sure the broker buys into the value proposition. They must also benefit from it. The benefits must not transfer from them to us. Value in the business case, defined by InsureUs, may not be value enough because if the target audience doesn't buy in then it is going to fail. The value needs to accrue to the target audience." (DM1)*

The development manager had a suggestion about how the transfer of value could be achieved for both parties; "It is about what's in it for them not for us. If you get that hook,

you hook them in and do what's good for them then later you can add stuff that adds value for us. The problem arises then that something you assumed would costs 3 million Rand might end up costing 10 million Rand and you get frowned upon because you created value for them".

This risk was not identified in the literature for mobile services however it has been reported as a risk associated with ERP systems (Lindley, Topping & Lindley, 2008). When the benefits of the MEA accrue to one party at the expense of the other, this could have the consequence of the affected party not using the MEA which impacts negatively on the benefits realisation.

## 9.9 Security Concerns

Because users of the MEA are mobile and sensitive data is on the tablet devices, it is important that the data is protected should the device be lost or compromised. Having an ability to delete the device remotely is an essential security necessity. Also, a secure login which protects the data while at the same time being simple enough so as not to impede the use of the MEA should be a design consideration. Obstacles to ease of use lower adoption so good design needs to consider easy yet secure access to the MEA.

> *"Maybe security is an unanticipated risk. The organisation does not have a security model to deal with seasonal employees. They never had ids in InsureUs because they never needed to log into anything. Then there is stuff with security. They are now deemed to be internal users. Granting access, adding new user accounts, changing passwords is a problem. An enterprise risk to mobility is the security." (DM1)*

Security concerns from mobility were validated in prior research by Unhelkar and Murugesan (2010).

## 9.10 Limitations

Risks to benefits being realised emerge as the MEA is being used over time. A limitation is that the study was cross-sectional. A longitudinal study would allow for risks materialise over a longer period of use. The risks identified in this study focused on the set of risk factors about the benefits of using the MEA and not the broader context of project risk factors such as changes in the environment and project finance risks. Further research can identify risks from other industries utilising MEAs in other business processes. The MEAs in this study were used

in the claims and assessments process, and the risks might be different industries utilising MEAs in other business processes.

## 9.11 Summary

This question sought to highlight the risks which could impede the delivery of the expected benefits when using MEAs. It is important to understand which risks pose this threat to benefits realisation so that mitigation actions can be put in place early on in a project so as not to let the risks develop. By providing user training and support, by having the necessary functionality in the MEA, and by addressing the various technical and security issues, benefits can be realised for both the organisation as well as the users of the MEA.

By answering this question, a contribution is made to both the body of knowledge and to practice. Organisations can use the findings to address challenges in benefits when using MEAs and researchers can use the findings for academic purposes. A limitation of this study is that different benefits arise from the use of MEAs in different contexts and as such so do the risks which impede them. Further studies could identify these additional benefits and risks in various contexts. A large risk which threatens benefits realisation is that of poor adoption because if users are not using the MEA, the benefits derived from their using it can't be achieved.

# 10. Adoption of MEA Discussion

**What are the factors which influence the adoption of MEA by individuals?**

The results of the survey conducted in this research identified several factors which can influence the adoption of MEAs. *Figure 4* represents the proposed research model that was used to investigate this question on adoption of the MEAs. This model was explained in section 2.13.

Table 35 acts as a key to the construct codes and shows sample questions used in the analysis and other areas of this section. The full survey instrument is found in Appendix 7.

| Code | Construct | Questions |
|---|---|---|
| PU | Perceived Usefulness | Using the app improves my performance in my job |
| PEU | Perceived Ease of Use | Using the app enhances my effectiveness in my job |
| SN | Subjective Norm | People who are important to me think I should use the app |
| IM | Image | Having the mobile app is a status symbol |
| JR | Job Relevance | In my job, usage of the app is relevant |
| OQ | Output Quality | The quality of the app's output is high |
| RD | Results Demonstrability | The results of using the app are apparent to me |
| EX | Experience | I have a great deal of experience using mobile apps |
| MO | Mobility | The mobility of the app makes it useful in doing your job |
| LD | Location dependency | The app gives me access to information wherever I am working |
| TC | Time criticality | The app saves me time when doing my job |
| PO | Portability | The mobile device is so small I can take it anywhere |
| MA | Maturity | If the performance of the app were improved, the app would be more useful to me |
| PLC | Perceived loss of control | The use of the app is mandatory |
| SA | Symbolic adoption | I am excited about using the app for my assessments |

| | | |
|---|---|---|
| WF | Willingness to fund | In my job, funding from InsureUs for a tablet is crucial for me because, I risk paying a lot of money for something that is not worth much to me |

*Table 35: Key to Construct Codes*

The findings from the statistical analysis of the survey data will now be discussed — first the results of the tests followed by a discussion of the meaning and implications of the test results.

## 10.1 Descriptive Statistics

| Construct | Minimum | Maximum | Mean | Std. Deviation | Variance | Skewness | Kurtosis |
|---|---|---|---|---|---|---|---|
| PO | 2 | 7 | 5,90 | 1,223 | 1,495 | -1,253 | 0,912 |
| PEU | 2 | 7 | 5,81 | 1,062 | 1,127 | -1,079 | 1,404 |
| SA | 1 | 7 | 5,74 | 1,229 | 1,512 | -1,604 | 3,694 |
| PU | 2 | 7 | 5,73 | 1,265 | 1,599 | -1,201 | 1,362 |
| OQ | 1 | 7 | 5,63 | 1,196 | 1,431 | -1,317 | 2,108 |
| RD | 2 | 7 | 5,58 | 1,218 | 1,483 | -1,208 | 1,493 |
| JR | 1 | 7 | 5,52 | 1,326 | 1,757 | -1,061 | 1,017 |
| WF | 1 | 7 | 5,37 | 1,725 | 2,977 | -1,141 | 0,510 |
| MA | 1 | 7 | 5,34 | 1,377 | 1,896 | -0,970 | 1,033 |
| SN | 1 | 7 | 4,89 | 1,478 | 2,183 | -0,742 | 0,492 |
| PLC | 1 | 7 | 4,88 | 1,783 | 3,181 | -0,691 | -0,424 |
| EXP | 1 | 6 | 4,61 | 1,207 | 1,456 | -0,646 | -0,226 |
| IM | 1 | 7 | 4,11 | 1,449 | 2,101 | -0,220 | -0,077 |

*Table 36: Descriptive statistics*

The descriptive statistics in Table 36 describe the data collected from the survey. The Likert scale of the questions was spread from 1 to 7 wherein most cases 1 was a negative response regarding perceptions towards the MEA while question 7 was the most favourable response. Portability, perceived ease of use and symbolic adoption achieved the highest sample means, indicative of a more favourable response for the use of MEAs. The sample skewness, as well as kurtosis, indicates a left-skew (negative skew) with a positive kurtosis suggesting narrow range round the peak of distribution for most of the constructs. Image is the most representative of normally distributed data when compared to others, indicating that participants didn't have any strong feelings about these measures. Symbolic adoption was most skewed (left-skewed) regarding distribution. The highest standard deviation and thus highest sample variance was found for perceived loss of control indicating this construct to be the least reliable for this dataset. Perceived ease of use was deemed to be the most reliable in this dataset with output quality and experience closely to follow suite. It is worth reporting the 95% confidence interval (CI) for this data, as this speaks to effect size and their precision

and allows for direct comparisons to other but similar datasets. Since the sample distributions skew to the left for most constructs, CI must be calculated after bootstrapping (number of bootstrap replicates = 200). Confidence interval ranges have a very narrow range round the mean. We are therefore confident that we captured the true population mean in this dataset. Ultimately, we conclude a predominantly favourable response to the survey questions as is observed in the sample distributions.

## 10.2 Cronbach Alpha test

Table 37 indicates that the adoption constructs met the required Cronbach Alpha measures of greater than 0.6 which is the acceptable alpha measure for exploratory study (Bhattacherjee, 2012). This table summarises the various Cronbach Alpha's for all of the initial questions and shows the final set of accepted questions for each construct.

| Construct | Initial Questions | Cronbach Alpha | Accepted Questions | Revised Cronbach Alpha |
|---|---|---|---|---|
| PU | 2, 3, 4, 5 | .921518 | 2, 3, 4, 5 | .921518 |
| PEU | 6, 7, 8, 9 | .881303 | 6, 8, 7, 9 | .881303 |
| IM | 14, 15, 16 | .851061 | 14, 15, 16 | .851061 |
| SN | 10, 11 | .877664 | 10,11 | .877664 |
| EX | 12, 13 | .635232 | 12, 13 | .635232 |
| JR | 17, 18 | .806898 | 17, 18 | .806898 |
| OQ | 19, 20 | .964505 | 19, 20 | .964505 |
| RD | 21, 22, 23 | .915110 | 21, 22, 23 | .915110 |
| **SA** | **24, 25, 26, 27** | **.531263** | **24, 26, 27** | **.928381** |
| PO | 31, 32 | .808168 | 31, 32 | .808168 |
| MA | 33, 34 | .866608 | 33, 34 | .866608 |
| PLC | 35, 36 | .950581 | 35, 36 | .950581 |
| WF | 37, 38 | .784348 | 37, 38 | .784348 |

*Table 37: Reliability Analysis Summary*

The Cronbach Alpha for Symbolic adoption went from 0.53 to 0.93 when removing question 25. This indicates that question 25 was not a suitable measure for this construct and as such was removed from the group. Alpha values of greater than 0.7 were obtained for each of the groups related to the constructs which imply that the questions were reliable and there was a high degree of internal consistency for the test items related to the constructs and that the questions group well together (Gliem & Gliem, 2003). The high degree of internal consistency allowed all test items related to the adoption constructs to be used in further analysis.

## 10.3 Factor Analysis

Factor loadings above 0.7, with a maximum of 1.0, are considered acceptable.

| Variable | Factor Loadings (Varimax normalised) (Survey Data 131217.sta)<br>Extraction: Principal components<br>(Marked loadings are >,600000)<br>Factor | Factor | Factor | Factor | Factor | Factor | Factor |
|---|---|---|---|---|---|---|---|
| Q2_ImpPerf_A | 0,29155 | 0,079758 | 0,100442 | 0,264283 | 0,079823 | 0,086587 | 0,706423 |
| Q3_Inc Prod_A | 0,37884 | 0,083393 | -0,004203 | 0,004322 | 0,184931 | 0,021359 | 0,804685 |
| Q4_IncEff_A | 0,51533 | 0,196089 | 0,102437 | 0,127523 | 0,106011 | 0,036735 | 0,678225 |
| Q5_Useful_A | 0,51368 | 0,151564 | 0,135163 | 0,251189 | 0,228090 | 0,031035 | 0,652486 |
| Q6_Clear_B | 0,64423 | 0,136123 | -0,007140 | 0,389535 | -0,019943 | 0,244251 | 0,419506 |
| Q7_MentalEffort_B | 0,56996 | 0,317557 | 0,054235 | 0,280450 | -0,125587 | 0,059181 | 0,432431 |
| Q8_Easy_B | 0,73090 | 0,150613 | 0,062180 | 0,357013 | 0,178800 | 0,087661 | 0,183532 |
| Q9_EasyToDo_B | 0,73096 | 0,240389 | -0,071574 | 0,062617 | -0,023782 | 0,000848 | 0,299917 |
| Q10_Influence_C | 0,48183 | 0,263632 | 0,344248 | -0,388297 | -0,223078 | 0,172381 | 0,243627 |
| Q11_Important_C | 0,49261 | 0,426154 | 0,370711 | -0,332435 | -0,060244 | 0,045636 | 0,320673 |
| Q12_Experience_T | 0,28154 | 0,121795 | 0,015814 | 0,704671 | 0,079173 | 0,128420 | 0,257685 |
| Q13_Time_T | 0,11262 | -0,204832 | 0,209238 | 0,732732 | -0,011060 | -0,255098 | 0,171973 |
| Q14_Prestige_D | 0,24113 | 0,805444 | 0,160749 | -0,032785 | 0,115947 | -0,149346 | 0,186954 |
| Q15_Profile_D | 0,21412 | 0,849847 | 0,137064 | -0,063952 | 0,094254 | -0,071507 | 0,200818 |
| Q16_Status_D | 0,17853 | 0,807079 | -0,042362 | 0,079101 | 0,047182 | 0,211336 | -0,039294 |
| Q17_AppImp_E | 0,61740 | 0,064148 | 0,254682 | 0,096846 | 0,338274 | 0,169621 | 0,376226 |
| Q18_Relevant_E | 0,66694 | 0,025703 | 0,297815 | 0,012007 | 0,265696 | -0,029027 | 0,238599 |
| Q19_OutpulGet_F | 0,80962 | 0,127876 | 0,100034 | -0,109400 | 0,167134 | -0,024233 | 0,265973 |
| Q20_AppOutput_F | 0,84151 | 0,102214 | 0,049293 | 0,011236 | 0,144761 | 0,056453 | 0,249984 |
| Q21_Telling_G | 0,70705 | 0,163345 | 0,189346 | 0,213866 | 0,185242 | 0,138138 | 0,341599 |
| Q22_Results_G | 0,84483 | 0,045910 | 0,072718 | 0,120114 | 0,168938 | 0,092169 | 0,204964 |
| Q23_Comm_G | 0,74029 | 0,098669 | 0,080379 | 0,389749 | 0,228662 | 0,226747 | 0,172578 |
| Q24_Enthusiastic_J | 0,72603 | 0,121982 | 0,249527 | 0,225191 | 0,186251 | 0,166809 | 0,245118 |
| ~~Q25_Explaining_J~~ | ~~-0,35983~~ | ~~0,249781~~ | ~~-0,036770~~ | ~~-0,212101~~ | ~~-0,564096~~ | ~~0,205257~~ | ~~0,196459~~ |
| Q26_Excited_J | 0,71124 | 0,150828 | 0,256558 | 0,216810 | 0,140352 | 0,045267 | 0,282106 |
| Q27_Desire_J | 0,72779 | 0,113947 | 0,245216 | 0,177645 | 0,279094 | 0,232210 | 0,192081 |
| Q31_Device_H | 0,32089 | 0,265837 | 0,231597 | 0,258324 | 0,303958 | 0,086668 | 0,314744 |
| Q32_DeviceW_H | 0,44011 | 0,256115 | 0,186256 | 0,296419 | 0,283847 | -0,114379 | 0,334757 |
| Q33_PerfImprov_I | 0,19392 | 0,191809 | 0,831168 | 0,105846 | 0,134851 | 0,265267 | 0,000794 |
| Q34_MoreUseful_I | 0,08131 | 0,023532 | 0,901938 | 0,088782 | 0,120840 | 0,043342 | 0,109396 |
| Q35_Mandatory_L | 0,22670 | 0,204252 | 0,120931 | 0,042746 | 0,791550 | 0,181188 | 0,226499 |
| Q36_Compulsory_L | 0,28251 | 0,184578 | 0,148143 | -0,059038 | 0,794738 | 0,235270 | 0,288688 |
| Q37_Funding_K | 0,06631 | -0,103683 | 0,077165 | -0,112397 | 0,110150 | 0,893226 | 0,154084 |
| Q38_CoPays_K | 0,34290 | 0,125549 | 0,262910 | 0,061640 | 0,102311 | 0,788072 | -0,058976 |
| Expl.Var | 10,86270 | 3,180762 | 2,510723 | 2,441145 | 2,551072 | 2,157424 | 3,981845 |
| Prp.Totl | 0,30174 | 0,088355 | 0,069742 | 0,067810 | 0,070863 | 0,059928 | 0,110607 |

*Table 38: Factor Analysis Summary*

All constructs loaded above the 0.6 value which is considered acceptable in exploratory studies therefore the data was acceptable to continue with the analysis. The only question which had values less than 0.6 was question 25 and it was therefore deemed unacceptable to include in further analysis and removed.

Table 38 shows that five constructs loaded in one column (Perceived Ease of Use, Job Relevance, Output Quality, Result demonstrability, Symbolic Adoption) while other columns had single factors. Having multiple constructs load in a single value is acceptable and could be explained because of the small sample size in this study. Question 25 was removed because the Cronbach alpha went from 0.531 to 0.928 and the factor analysis showed that it was the only question in the group below the 0.6 scores at 0.35983. This shows that this question failed the reliability check for this construct and was therefore removed. Question 7 had a score below 0.7 but was retained because removing it lowered the Cronbach alpha to 0,854788.

## 10.4 Correlation Testing

Spearman correlation tests were carried out to test the correlation between the variables. The results are shown in Table 39. The analysis of responses found that all variable pairs were correlated at a 95% level of significance other than Willingness to fund and Symbolic adoption, and Maturity and Perceived usefulness.

| | Spearman | p-level (N=82) |
|---|---|---|
| LD & PU | **0,740776** | **0,000000** |
| RD & PU | **0,693514** | **0,000000** |
| PU & SA | **0,667583** | **0,000000** |
| JR & PU | **0,669064** | **0,000000** |
| OQ & PU | **0,659469** | **0,000000** |
| PEU & SA | **0,648520** | **0,000000** |
| PEU & PU | **0,625456** | **0,000000** |
| MO & PU | **0,620319** | **0,000000** |
| TC & PU | **0,548709** | **0,000000** |
| PLC & SA | **0,538384** | **0,000000** |
| PO & PU | **0,533665** | **0,000000** |
| SN & PU | **0,362490** | **0,000882** |
| SN & SA | **0,333620** | **0,002338** |
| IM & PU | **0,292840** | **0,007588** |
| WF & SA | 0,250891 | 0,022994 |

| | | |
|---|---|---|
| MA & PU | 0,196293 | 0,077152 |

*Table 39: Spearman bi-variant correlation summary. (Significant correlations are in bold font)*

Multiple and then forward stepwise regression was performed to investigate the simultaneous effect of the independent variables on symbolic adoption and perceived usefulness by experience grouping. The multiple regression results of each dependent variable are shown in Table 40 and Table 41.

| **Perceived Usefulness** | $R^2$= ,6834 | |
|---|---|---|
| | β | p-level |
| PEU | 0,191671 | 0,199477 |
| SN | 0,009979 | 0,919917 |
| IM | 0,032729 | 0,699458 |
| JR | **0,254281** | **0,043974** |
| OQ | -0,088142 | 0,508263 |
| RD | 0,100391 | 0,580354 |
| MO | -0,047421 | 0,737083 |
| LD | **0,261066** | **0,043086** |
| TC | 0,168130 | 0,157135 |
| PO | 0,091899 | 0,335299 |
| MA | -0,040020 | 0,640988 |

*Table 40: Regression Summary for Dependent Variable: Perceived Usefulness. (Significant correlations are in bold font)*

| **Symbolic Adoption** | $R^2$= ,70344 | |
|---|---|---|
| | β | p-level |
| PEU | **0,459097** | **0,000035** |
| SN | 0,087888 | 0,273992 |
| PU | **0,230112** | **0,023511** |
| WF | 0,131682 | 0,062656 |
| PLC | 0,132378 | 0,082732 |

*Table 41: Regression Summary for Dependent Variable: Symbolic Adoption. (Significant correlations are in bold font)*

The regression equations in *Table 42* were generated from stepwise regression because of the high correlation between variables.

| **Equation** | **$R^2$** |
|---|---|
| SA = 0.315*PU + 0.605*PEU + 0.135*WF - 0.218 | 0,671973 |
| PU = 0.752 + 0.419*PEU + 0.253*JR + 0.208*LD | 0,646547 |

*Table 42: Regression Equations by Experience level*

The coefficient of determination ($R^2$) is an indication of the percentage of variation in the dependent variable which can be explained by variation in the independent variables (Keller

& Warrack, 2000). The independent variables for Symbolic adoption accounted for 67% of the total variation and for Perceived usefulness they accounted for 65%.

## 10.5 Experience

As can be seen from Figure 13, the largest number of respondents (49) had more than two years of experience which is represented by groups 5 and 6 in the graph.

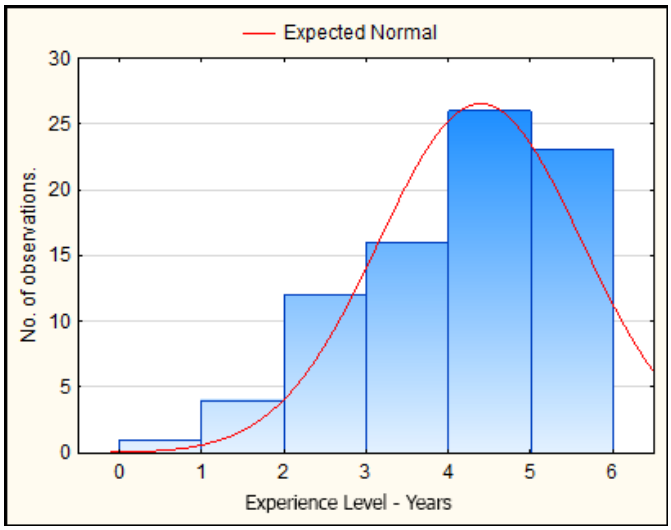


*Figure 13: Respondent experience level*

**Moderation Testing**

Moderation tests described by Hayes (2013) were used to determine the significance of the moderation effect of experience on the relationships between subjective norm and perceived usefulness, subjective norm and symbolic adoption, and finally willingness to fund and symbolic adoption. The change in the $R^2$ and the significance of the change are found in Table 43 and Table 44.

| **Symbolic Adoption** | $R^2$ Change | Significance Change |
|---|---|---|
| Exp, SN | 0,309 | 0,000 |
| Exp, SN, Moderator | 0,031 | *0,037* |
| WF, Exp | 0,199 | 0,000 |
| WF, Exp, Moderator | 0,020 | 0,129 |

*Table 43: Regression Result for moderation of SA and SN and SA and WF by Exp*

| **Perceived Usefulness** | $R^2$ Change | Significance Change |
|---|---|---|
| Exp, SN | 0,302 | 0,000 |
| Exp, SN, Moderator | 0,006 | 0,352 |

*Table 44: Regression Result from moderation of SN and PU by Exp*

The tests showed that the moderation influence of experience on subjective norm and symbolic adoption was significant at 3.7% which is below the accepted level of 5%. The influence of experience on willingness to fund and symbolic adoption was not significant at 12.9%. Similarly, the effect of experience on subjective norm and perceived usefulness was not significant at 35.2%.

## 10.6 Validation of the Model

In support of the literature, a positive linear correlation was found between the constructs in the model in Figure 5. The only correlation which was not validated (H10) was that of maturity and perceived usefulness. Gebauer (2008) found that perceptions of the technology maturity had a strong influence on perceived usefulness. If users perceive that the technology is not mature, then they will not be willing to try the technology let alone use it. There was no correlation between maturity and perceived usefulness in this study. Prior studies (Venkatesh & Davis, 2000; Gebauer, 2008) showed that social influence on perceptions of usefulness decrease as experience increases because users rely less on external information about the usefulness of the new technology and more on their knowledge. The test for the moderation of image and perceived usefulness by experience was not tested in this study, so this finding could not be validated.

Table 45 lists the findings from the correlation tests and the results of the hypotheses which validated the relationships between the constructs.

| **Construct** | **Corr** | **Spearman (All)** | **Hypothesis** | **Finding** |
|---|---|---|---|---|
| SN & PU | Yes | 0.362490 | H18/H13 | Confirmed (not mediated by experience) |
| SN & SA | Yes | 0.333620 | H1/H12 | Confirmed (mediated by experience) |
| IM & PU | Yes | 0.292840 | H2 | Confirmed |
| JR & PU | Yes | 0.669064 | H4 | Confirmed |
| OQ & PU | Yes | 0.659469 | H3 | Confirmed |
| RD & PU | Yes | 0.693514 | H5 | Confirmed |
| MO & PU | Yes | 0.620319 | H6 | Confirmed |
| LD & PU | Yes | 0.740776 | H7 | Confirmed |
| TC & PU | Yes | 0.548709 | H8 | Confirmed |
| PO & PU | Yes | 0.533665 | H9 | Confirmed |
| MA & PU | No | **0.196293** | H10 | Not confirmed |
| PEU & PU | Yes | 0.625456 | H11 | Confirmed |
| PU & SA | Yes | 0.667583 | H19 | Confirmed |
| PEU & SA | Yes | 0.648520 | H20 | Confirmed |

| | | | | |
|---|---|---|---|---|
| WF & SA | Yes | 0.372835 | H16/ H15 | Confirmed (not mediated by experience) |
| PLC & SA | Yes | 0.538384 | H17 | Confirmed |

*Table 45: Findings of validated relationships between constructs*

There was no significant moderation between willingness to fund and symbolic adoption. This finding is contrary to that of Kim (2008) who found that experience had a moderating effect on the company's willingness to fund and intention to use (symbolic adoption).

## 10.7 Factors influencing Adoption

The data collected supported the overall validity of the model and all, but one of the hypotheses were supported. The model in Figure 14 represents the final model which explains the adoption of the MEAs in this study along with their correlation coefficients.

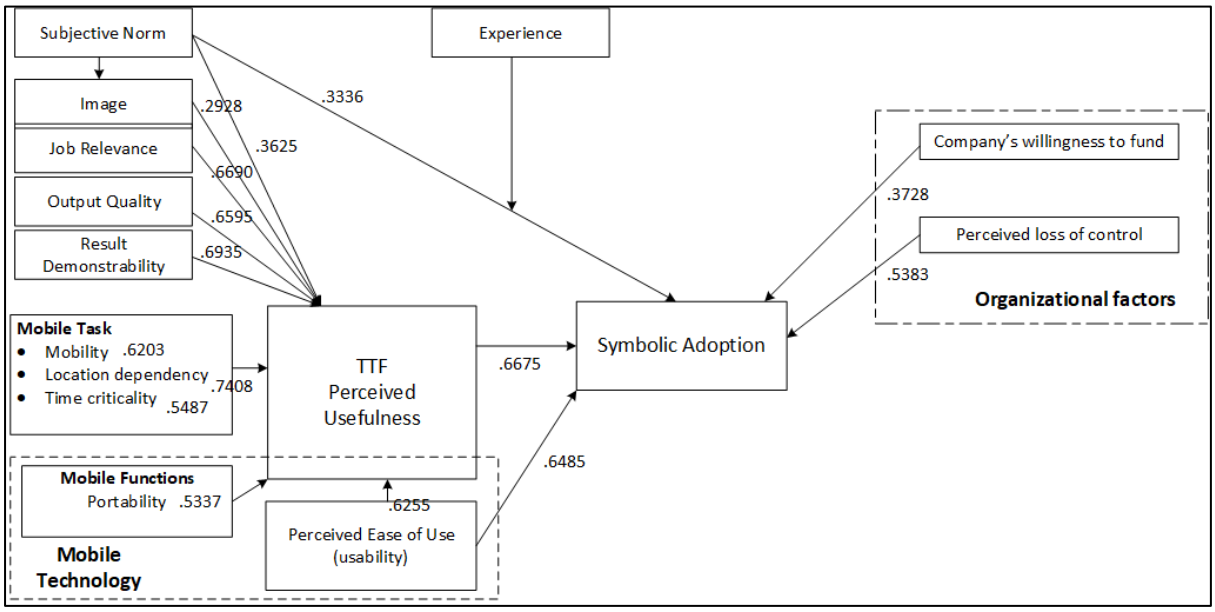


*Figure 14: Final Adoption model with coefficients of correlation*

Maturity was not found to have a significant influence on perceived usefulness in this study which is contrary to what is found in the literature. The results show that the factors influencing Symbolic adoption most are the perceived usefulness of the MEA, the perceived ease of use, which is the same finding as in the literature and also the company's willingness to fund the devices. This study did not find that experience moderated the relationship between subjective norm and perceived usefulness. This is contrary to the findings from the literature. The literature shows that experienced users are more likely to get their information about the technology and form opinions about its usefulness from their peers (Kim, 2008). More experienced users will be self-reliant because they have their own experience on which

to draw. The effect of experience on the relationship between willingness to fund and symbolic adoption was not found to be significant.

## 10.8 Practical Relevance of Model

Perceived ease of use influences symbolic adoption, and it can be addressed with good design of the user interface (UI) of the MEA. This shows that there should be extra effort put into the design stage of the MEA to maximise this user experience as it heavily influences adoption and ultimately the realisation of the benefits once the MEA is adopted. Secondly, perceived usefulness can be influenced by ensuring that the users understand the benefits of using the MEA to themselves as well as to the organisation. The design of the MEA also plays an important role in that making sure the correct functionality is included in the MEA, to make it useful to the user is a determining factor for adoption. Finally, the company's willingness to fund is worth proper consideration as it positively influences symbolic adoption. In the case of InsureUs, there is no standard policy to provide devices to users of the MEA. In the case of the Agri MEA, assessors were reimbursed for their purchase of a device but in the case of the Risk MEA, no such arrangement was made, and Brokers were expected to purchase their own devices. This has a significant impact on the adoption of the MEA as demonstrated by the regression equations.

Venkatesh and Davis (2000) found that subjective norm exerted a significant direct effect on usage intentions over and above perceived usefulness and perceived ease of use for a mandatory system. This finding was not validated in this study. Subjective norm had a lesser influence than perceived usefulness and perceived ease of use. The difference in findings can be because of the smaller sample size and fewer cases in this study compared to the Venkatesh and Davis study as well as a different population sample based on geography and sophistication of users. This would need to be investigated further to find the possible reasons for this difference. They also found that as individuals gained direct experience with a system over time, they relied less on social information informing perceived usefulness and intention but continued to judge a system's usefulness by potential status benefits resulting from use (Venkatesh & Davis, 2000). This finding is validated in this study when looking at the high correlation results of both image and perceived usefulness and subjective norm and

perceived usefulness. It would, therefore, be advisable to have MEA champions advocating the use of the MEA.

The factors most influencing Perceived usefulness were Perceived ease of use, job relevance, and location dependence. Again, when looking at the results, perceived ease of use is a significant factor affecting adoption. Users primary concern is how easy the MEA is to use in their jobs. For the users of the MEA, the cognitive influencing factors of job relevance, location dependency, and result demonstrability play a significant role in the perceived usefulness of the MEA and ultimately the decision to adopt. These findings in this study validate the findings of Venkatesh and Davis (2000) who found that judgements of a system's usefulness are affected by the user's cognitive matching of their job goals within the consequences of using the system (job relevance). Kim (2008) showed that in the workplace users are more willing to adopt a technology that is useful (job relevance) which is again validated in this study. The influence of result demonstrability on perceived usefulness was also stated by Venkatesh and Davis (2000) and subsequently confirmed in this study. Unlike social influence processes, the effect of cognitive instrumental processes is not influenced by experience level (Venkatesh & Davis, 2000).

As discussed above, perceived ease of use relates to a good UI which makes the MEA easy to use, to learn, and to navigate. Job relevance can be addressed with training and getting the users to understand how the MEA benefits both themselves and the organisation. The MEA should make performing the job easier or at least add value where the paper process is replaced. The users need significant change management to understand how the MEA relates to their job function and how it can benefit them. Location dependence is also a design consideration which must be prioritised during the design stage. Ensuring that the MEA provides accurate and readily accessible data based on the location of the user ensures greater adoption of the MEA and greater adoption leads to benefits being realised. Location dependence leads to improved perceived usefulness of the MEA and therefore improved symbolic adoption. These results highlight that there are areas of design and user training that can be prioritised to improved adoption of the MEA when they are produced.

The only construct which was found not to be relevant was Maturity and was therefore removed from the model in Figure 14. The moderating effect of experience on subjective norm and perceived usefulness and company's willingness to fund and symbolic adoption was

also not validated and therefore removed. All other constructs and relationships in the model and found in the literature were validated by data. The relationship between subjective norm and image and its resultant effect on perceived usefulness is captured in TAM2. The literature shows that mandating system use is only effective initially before the user has personal experience (Agarwal & Prasad, 1997). Initially, the user draws on the normative group for their intention to adopt however as personal experience grows, the group influence falls away, and personal experience has a stronger influence. In this study, the influence of experience level had a moderating effect on the relationship between symbolic adoption and subjective norm.

## 10.9 Validation of findings from the survey

Table 46 shows where the findings from the MEA adoption survey validated the findings from the AR cycles. The qualitative data findings were corroborated with quantitative evidence.

| Risks identified in action cycles | Validated findings from survey |
|---|---|
| User resistance | MEA champions help overcome user resistance |
| Provision of devices | Company's willingness to fund positively influences symbolic adoption |
| Poor adoption | The level of symbolic adoption can be positively or negatively influenced by factors. Poor adoption can be addressed |
| Poor functional design | Perceived usefulness and ease of use has a strong influence on symbolic adoption. Good design, intuitive user experience, and job relevance improves adoption |
| Poor training leads to poor usage | Training improves user adoption of the MEA by explaining showing how the MEA improves productivity and effectiveness |
| Technical challenges of MEA | *No finding* |
| Lack of understanding of mobile devices | Training improves the symbolic adoption of MEA |
| Organization productivity at the expense of broker productivity | *No finding* |
| Security concerns | *No finding* |

*Table 46: Validation of risks from survey findings*

The qualitative findings from the AR cycles had many similarities to the findings from the quantitative survey data analysis. The risks identified in the AR cycles as listed in Table 45

matched the factors which could adversely affect adoption found in the quantitative analysis. User resistance to adopting the MEA because of poor functionality and poor ease of use were found in both data sets. The importance of the organization providing the devices for the MEA to the users surfaced in both. The benefit of location data being made available by the GPS functionality on the device was found to improve perceived functionality and therefore had an influence on adoption in both. The convenience of using the MEA was a benefit and a contributor to improved adoption in both data sets. The importance of user training was another factor which was found in both data sets. Training improves the user's understanding of how the MEA can make them more productive and efficient and therefore encourages adoption. Training improves the user's perception of the usefulness of the MEA and improved perception positively influences adoption as was found in the two data sets. The qualitative data showed that the design of the MEA both from an ease of use perspective and the functional tasks in the MEA affected the adoption. This same finding was made in the quantitative study. The adverse effect of users not wanting to use the MEA because of user resistance was that the benefits which could be accrued to the organization were lost thus poor adoption impacted benefits realisation. This effect on negative influences on symbolic adoption because of various factors was also found in the quantitative study. Strong adoption has a positive influence on benefits realisation and this finding was made in both analyses. The benefit of time saving by using the MEA makes the users more productive and this finding was found to improve adoption in both data sets. Another similar finding in both was the effect of experience on the adoption of MEAs. When users have more experience with using mobile apps, they are more positive about having to use them for work purposes.

## 10.10 Limitations

The Technology Acceptance Model (TAM) is the theoretical model upon which the adoption model in this study was based. TAM is criticized for being too simple and not being able to explain decisions and behaviour affecting adoption when assessing the scope of varying technologies, different adoption situations, and differences in the decision-making processes of decision makers (Bagozzi, 2007). The problem is that TAM ignores important determinants of decisions and actions (Bagozzi, 2007). To address the short-comings in explaining the gaps between intensions and behaviour with perceived usefulness and perceived ease of use on the one side and intensions on the other side, studies (Venkatesh, Morris, Davis & Davis, 2003)

have added moderators to explain the moderation effects of variables such as age, gender and experience on these relationships (Bagozzi, 2007). These attempts suffer from a lack of theoretical insight into why the moderators interact the way they do and the vast number of these types of moderating variables makes the broadening of TAM both unwieldy and conceptually impoverished (Bagozzi, 2007). Bagozzi (2007) explains several issues which he believes need to be addressed in TAM. The first of these is the need to explicitly focus on the end-state goals or objectives of using a technology. There is a need to explain the gap between intention to use a technology and the reason for using it. Secondly, he believes that a possible gap exists in time between intention to use and taking action to use the technology. This requires an understanding of the psychological steps that go on between intention formation and action initiation. Yet another concern with TAM is that it does not consider the effect of group, cultural, or social aspects of technology acceptance. Bagozzi (2007) points out that we seldomly make decisions only as individuals, most decisions are made interpersonally, as agents of organizations, or jointly with others, or as members of a collective. TAM is a framework for explaining decision making by individuals without the context of the group dynamic or social influence. Emotions is another area which is a weakness of TAM (Bagozzi, 2007). It is treated with extensions of TAM. Emotions such as anxiety toward performing a behaviour, intrinsic motivation, affect towards use such as joy or sadness, and the liking of a particular behaviour have all been grouped as determinants of intentions (Venkatesh et al., 2003). These are considered to be instances of attitudes and thus not independently measured. Bagozzi (2007) argues that attitudes and emotions are distinct phenomenon and TAM ignores the effect of emotions on adoption decisions. A final criticism which Bargozzi (2007) makes about TAM is that it omits to consider self-regulatory processes in decision making. TAM is a deterministic model where the cause at the start of an arrow is presumed to lead to the effect at the head of the arrow. The model assumes the cognitive laws of information processing and emotional and motivational laws of responding where the regularity theory of causality is presumed to operate. This Bargozzi (2007) argues, is not the case.

Other critics of TAM (Straub & Burton-Jones, 2007) suggest that there is a methodological bias in TAM studies which is caused by common methods of variance (CMV) where the respondents are asked how they perceive a technology and then they are asked about their

use of the technology. The issue they see is that this leads to a bias in the response. They recommend that independent sources of data relevant to usage behaviours should be used rather than user responses to address this problem.

Quantitative data collected from a survey was used to understand the adoption of the MEA. Quantitative data collection is done primarily with surveys. Surveys have known weaknesses. First, data collected from questionnaires are self-reported and therefore suffer from biases associated with acquiescence, social desirability, and non-response (Converse & Presser, 1986). Second, quantitative data analysis follows the principle of data reduction, using statistical techniques which reduce complex and inter-dependent human-technology interactions to quantifiable, linear, and deterministic relations (Wu, 2011). A third weakness of surveys is that closed survey instruments are inflexible to ad-hoc changes during the research process, which could lead to important findings being overlooked (Wu, 2011).

Since the data for the adoption study was captured and representative of a point-in-time and not longitudinal, this could influence the results of experience as a moderating effect. Venkatesh and Davis (2000) found that social influence on adoption decreased over time. As users become more familiar with the technology, they rely less on social influence. This study did not examine how the users' responses differed over some time and users became more experienced with using the MEA.

The moderation effect of experience, as well as the relationship between maturity and perceived usefulness, was found to be different from the results found in the literature. This could be due to the small sample size of users of the MEAs in this study, and these tests would need to be carried out in a different organisation or a different industry to validate whether the results vary across industries and companies.

The method used to test the relationships between constructs in the model was correlation testing. This technique is criticized as being less accurate than structural equation modelling (SEM) for showing the relationships between variables in the entire model (Gefen, Straub & Boudreau, M, 2000). The causal networks enabled by SEM characterize processes better than correlation-based models and it is claimed that SEM is better suited for theory and practice (Gefen, Straub & Boudreau, 2000).

A notable limitation of the survey study is rooted in the sample size. As is the case with most surveys reliant on participation-based data, there is limited control regarding sample size. This directly impacts the statistical power of the study and special consideration would have to be made in order to extrapolate the findings to the population at large. These findings however are formative in the initial understanding of many relationships uncovered in the study and serve well as a pilot investigation with the potential for many avenues of follow up studies. Surveys of this nature will always be constrained due to a certain degree of absence in participation, but postulation of relationships follow sound rational when bearing in mind the limitations of the study and thus not over interpreting the data. These limitations must be considered with every extrapolation of the data so as not to lose sight of what the true population could reflect.

## 10.11 Summary

This question sought to find the factors which influence the adoption of MEAs. The answer is that MEA adoption can be influenced by concerted effort in a few areas. Designing a MEA that is simple and intuitive to use and at the same time functional and useful in carrying out one's job, greatly improves the possibility of adoption. The design of the MEA needs to be purposeful considering these elements of adoption from the very start.

Additionally, funding of the technology required to use the MEA needs to be accommodated by the company. Willingness to fund this technology has a significant impact on adoption. If the users are expected to purchase their own tablet devices, then there will be a negative impact. The need for product champions who promote the MEA and train users on an on-going basis supports positive adoption and needs to be included in a MEA project for benefits of the MEA to be realised.

# 11. Conclusion

Mobile apps in general and MEAs specifically are becoming more commonly found in everyday use. There is an expectation of companies to provide system functionality on mobile devices because workers are more mobile and work is done remotely. There is a general belief that these MEAs provide benefits to organisations however the literature and practice both show that organisations are bad at managing and realising benefits from IT projects. BM is poorly implemented, and MEA projects are no exception. This study set out to define a BM process which could be used to identify and manage the expected benefits from using MEAs in the insurance industry. The insurance industry is ripe for disruption and new and innovative ways of using technology to drive efficiencies are of great importance.

The second purpose of the study was to identify which benefits organisations in this industry could expect to realise when utilising MEAs and also which risks could prevent this realisation. Only once the benefits are identified, can measures be put in place to track the realisation of the benefits. Therefore, understanding which benefits can be achieved is important. Mitigating actions for risks to realisation are vital to prevent the potential risks from materialising.

The final purpose of the study investigated which factors influence the adoption by the users of the MEA. Adoption of technology is challenging and if the full benefit of using MEAs is to be realised then the successful adoption of these applications is a necessary step. Understanding the factors influencing the adoption allows organisations to ensure that each of the factors is suitably dealt with to achieve success.

## 11.1 Limitations

Several limitations of this study need to be acknowledged. The first limitation is that the strategy used, that of a single organisation case study limits the possibility of establishing whether the same results would be achieved in other similar companies using MEAs. While case studies allow for rich context-specific findings, they are also criticised for not being generalizable. The business processes in which the MEAs in this study were used are not necessarily identical to processes in other similar insurance organisations, and therefore the findings and outcomes might differ elsewhere.

A second limitation is that the industry in which this study took place namely the short-term insurance industry has its inherent challenges and ways of doing business. These could influence the types of benefits that can be realised by using MEAs. The type of seasonal contractors, the average age of the experienced workers and many other factors related to the processes and users of the MEA could influence the findings. These would need to be tested in other industries.

A third limitation concerning the BM needs mention. BM depends on the maturity of project management in an organisation. BM will be influenced by many factors such as the experience of the process, the experience level of the project stakeholders, and how projects are funded and managed in an organisation. The BM process in this study was not strictly followed by the stakeholders, and this could be unique to this case organisation however the literature points to the same finding in other studies. Testing the same BM process in other companies would be necessary to determine whether the outcome is the same elsewhere. An important component of BM in organizations is the business change process to enable the implementation of a new system and also the governance around the BM process mandated in the organization. This study did not attempt to influence the change management process nor the governance in the BM process in each project. These tasks were not under the control of the researcher or the project stakeholders. Having control over these components would possibly have influenced the success of the BM process and this would need to be investigated in future research.

Because this study was done for a PhD, the amount of time available to complete the AR was limited. Critics of AR claim that this research strategy is not appropriate for PhD students for this reason as well as for the reason of unpredictable outcomes from the research (Avison et al., 2018). During the course of this study several unexpected events took place which had a bearing on the study. The principal project sponsor was promoted and left the project completely and nobody replaced her. This caused the momentum in the project to be lost which threatened the success of the research. There were also severe delays in the deployment of the MEA due to scope creep in each cycle which caused delays in the data collection from the use of the MEA. The possibility of further refining the BM process model is both a limitation and an opportunity for future studies. This model can be tested in other MEA projects in other organisations to evaluate its ability to improve benefits realisation.

Concerning the adoption question in the study, the influencing factors affecting adoption can be influenced by the level of experience of users using the technology. This study did not investigate the adoption longitudinally but at a point in time. As users become more familiar with a technology, their perceptions change and this influences the adoption. A more comprehensive investigation at different stages of using the MEA could establish the effect of experience on adoption.

The survey approach used in the study provides a 'snap-shot' at a point in time of a situation and it provides little information on the meaning of the underlying data (Gable, 1994). The upside of surveys is that they accurately document the norm, identify extreme outcomes, and delineate associations between variables in a sample (Gable, 19994). By adding a qualitative component to the data collection and analysis process, these weaknesses were addressed.

## 11.2 Future research

MEAs have the potential of changing traditional business processes through mobility and the richer functionality of the smart devices. This leads to potential benefits not yet discovered from their use. Various industries can be studied to determine whether different benefits accrue to different industries. The BM process created by this study can be tested in different companies to establish whether the process is more successful in other contexts. The maturity of the BM capability in the organization has a direct bearing on the success of BM. This would result in varying degrees of BM compliance in different organizations and consequently different levels of benefits realization from a BM process like the one proposed in this study. This creates an opportunity for future studies which examine the level of success in implementing such a BM process. The age demographic of the user base in this study was an older generation of broker and assessor. A younger user-base in a different industry might have different adoption factors as they are more comfortable with smart devices and using this newer technology.

The method used to analyse the quantitative data could be improved by using SEM in future studies. SEM has been demonstrated to address many of the shortcomings of correlation testing and using causal modelling can potentially have different results which need to be tested.

Abduction was informally applied in the study to derive findings however this was not stated in the study. Future rigorous application of the abductive approach would strengthen the theoretical contribution.

## 11.3 Research Findings

The study showed that there are different levels of BM required for different size investments in this organisation *and* this finding was similar to that found in the literature which shows that there is a range of practice concerning using benefits realisation methodologies (Lin et al., 2005; Marnewick, 2016). This is not necessarily just a function of benefits realisation competence but was also showed to be a conscious choice for certain types of projects in this case. This organisation did not have an appetite for a heavy and cumbersome BM process for MEA which were considered to be a low-cost investment. While benefit identification and reporting on benefits were deemed important in the organisation, there was a lack of commitment to strictly adhere to the BM process which had been proposed by the researcher. Ultimately what proved the most valuable for BM was the creation of a benefit and risk template which can help when constructing comprehensive business cases with a complete list of potential benefits. Likewise, the list of risks which could hinder the realisation of the benefits assists projects to put mitigating actions in place to maximise the benefits realisation. The study established that only one or two key stakeholders ended up managing the benefits realisation, so a light process which assists key stakeholders manage the benefits was most feasible. The literature (Ashurst & Hodges, 2010; Waring et al., 2015) discusses poor BM skills found in project stakeholders as a cause of failed benefits realisation and this was found to be the case in this study also.

Additionally, it was found that benefits realisation should be a continuous process and not only carried out for the duration of the project. A product owner needs to continuously measure the targets set for the benefits, adjust and take actions to ensure that the targets are achieved. Benefits need to be owned by a person who is responsible for realising the benefits (Badewi, 2015; Winch & Leiringer, 2015). Badewi suggests that without an owner, nobody will make sure that the benefits accrue because nobody will be interested in ensuring that the MEA is being used and creating the expected benefits. The literature (Ashurst & Hodges, 2010) confirms the need for post-project benefits realisation measurement and this

is a behaviour which is found in organizations with a mature BM capability. Unexpected benefits and risks emerge once the MEA is being used and these need to be included in knowledge repository for future projects to use. If a project team is responsible for BM, the problem arises when the project stakeholders move to the next project after the delivery of the MEA and BM ceases to exist. This would depend on how important BM is within an organisation and how important it is to show benefits for the investments made in them. In this study the manner in which funding was obtained for MEA projects resulted in BM not being sustained much past the completion of the MEA development.

The benefits which can be derived from the use of MEAs are mostly in process efficiency which leads to cost savings and time savings. Other benefits are the elimination of recapture and other redundant tasks. Data accuracy achieved by using MEAs rather than paper-based process is a major benefit that was identified in claims processing and underwriting. The MEAs improved the accuracy of claims which allowed for better pricing of risk and improved claims pay-out. Along with the benefits, risks which could prevent the benefits from being realised were also identified. User resistance for various reasons impacted adoption negatively. This could be mitigated by the company providing the smart-devices to the users and providing adequate user training. Making sure that the MEA has the functionality that the users require to do their work also improves adoption. The use of MEA champions who promote the use of the app also helps improve the adoption and use of the app. In addition to the champions there are other factors which influence the perception of users regarding the use of the MEA.

Regarding the factors which effect the adoption, this study found that the biggest influences on symbolic adoption are perceived usefulness, perceived ease of use and the willingness to fund the device. This finding implies that the design of the MEA needs to be carefully considered from both a functional point of view to make it job relevant as well as a user experience perspective to make it simple and intuitive to use. The other factor which affects symbolic adoption is the company's willingness to fund the smart-devices for the users. These findings were not new to this study but confirmed the findings from the literature. It is noteworthy that MEAs as a new type of application is still influenced by the same influences as traditional systems.

The parallel mixed method approach to answering the BM process and the adoption questions proved to provide complementary findings. The quantitative study allowed for the

factors which impacted the use of the MEA to surface. By understanding these factors which could be addressed, the benefits and risks which were identified from the qualitative findings were more likely to be realised. The findings from the different mixed methods were complementary and also helped validate each other. An example of such a finding was the influence of the company willing to fund the smart devices. This finding was made in both the qualitative data analysis from the interviews as well as the quantitative survey data therefore triangulating the result and validating the finding. Several such findings were made because of the mixed method approach used in the study. While the purpose of the survey was not to validate the findings from the qualitative study, this was an added benefit of using a mixed method approach to answer the research questions.

## 11.4 Research Contribution

The approach used by Gregor (2006) will be used to explain the contribution made by this study. Her two views of theory in IS which were relevant here were;

1. Theory as statements that say *how* something should be done in practice and
2. Theory as statements of *relationships among constructs* that can be tested.

Additionally, the primary goals as described by Gregor of *prescription* and *analysis and description* describe the goals of the contributions in this work.

### 11.4.1 Practical contribution

The first contribution is a prescriptive BM process which prescribes how benefits realisation can be managed in MEA initiatives. The literature explains the importance of using BM to improve benefits realisation and discusses the risks to its adoption, however, few studies identify the problems with adopting BM in IT projects (Terlizzi et al., 2017). This study, therefore, contributes by addressing this lack and contributes to the BM literature. This prescriptive process model should improve the awareness of practitioners and researchers about BM when considering MEA projects. The process defined in this study has a focus on identifying benefits and risks for MEA business cases and then managing these benefits until they are realised. The process model shows which inputs and tasks can facilitate the BM at each stage of the model. The process was refined in AR cycles. This model will be useful to practitioners to guide projects through the various milestones at which benefit steps can be applied with the intended objective of ensuring benefits are managed and ultimately realised.

The model adds to the traditional model on which this was based, an extra step for continued BM post-implementation of the MEA so that additional benefits can be realised from the investment. This model can be used as a prescriptive process for projects to manage their benefits realisation. It can also be used by researchers for theoretical purposes to understand benefits realisation approaches and how to apply BM in projects and organisations deploying MEAs. The process model suggests that benefits need to be owned by invested stakeholders who assume responsibility for delivering the goals set for each benefit. It also assumes the learnings from each project will become part of a formal institutional knowledge base which is used to strengthen future MEA projects by averting previously made mistakes and capitalising on prior learnings. Very little work has been published about BM practice in South African organisations, so this study contributes to the South African BM context.

By explaining the conditions for transferability of research findings, the situation-dependency of AR is addressed, and the limitations that apply to generalising the findings are highlighted (Baskerville & Wood-Harper, 1996). The transferability of the results are demonstrated by relating the results to existing bodies of knowledge which thereby explicates the contribution and increases the transferability to similar situations (Nielsen, 2007). It is necessary to be explicit about the general charateristics of the findings and the conditions for transferring them to other situations. Nielsen (2007) argued that in an AR study, the results are practical, not abstract therefore for continuity of experience, the experience does not have to be general or abstract to be transferred to another situation where it is applicable. Pragmatists argue that continuity of experience, which is a requirement of AR (Dewey, 1931) depends on the quality of the experience and not on the generality of it (Nielsen, 2007). The results in this study were related back to the BM and benefits realisation body of knowledge which according to Nielsen (2007) confirms transferability. In addressing the conditions for transferability, it was established in this study that the results from the BM process are dependent on how the organisation prioritizes benefits reporting in projects of various magnitudes of spend. The resultant BM process from this study can be used in MEA projects in other situations as a prescriptive process for managing benefits. Whether the outcome will be replicated will depend on how seriously BM is applied to MEA projects in other organisations. BM is a capability in an organisation, and depending on the maturity of the

capability, the BM process model from this study will have varying degrees of success due to the level of experience with BM of the project role-players.

The second contribution of this research meets Gregor's goal of analysis and description by describing the benefits and risks which can be expected from the use of MEAs. This was used to create a template of possible benefits and risks for MEAs which can be used to build business cases for MEA projects. This contribution is useful to practice and to theory. It has practical use in BM for MEAs at the identifying and structuring benefits stage. During the action planning stage, the risk mitigations can be planned to fully realise the expected benefits which were identified. The theoretical contribution of this description of benefits and risks extends the BM body of knowledge by detailing the benefits that can be expected from this type of IT system in a specific context, that being the insurance industry which had not been done before.

### 11.4.2 Theoretical contribution

The third contribution answers the goal of analysis and description using Gregor's view of theory as statements of relationships among constructs that can be tested. This contribution describes the factors which effect the adoption of MEAs. The study created a MEA benefit and adoption model Figure 15 which shows the factors which influence symbolic adoption and then which factors and benefits impact business performance for MEAs.

The models and the benefits and risks which were established in this study enhance the knowledge domain for BM and for a specific type of system development, that of MEA.

## 11.5 Resultant benefit and adoption model

The model in Figure 15 is the final model from this study showing the factors influencing adoption and the benefits and factors which could influence business performance. The risks from the factors which could impede benefits from being realised are shown in the model alongside the factors where these risks emerge.

Net benefits are typically measured in studies using perceived usefulness or job impact as the most commonly used measure (Scott, DeLone & Golden, 2011). In this study the perceived usefulness of MEA by users was not empirically tested however the qualitative data did allude to the relationship. This can be tested in future studies.

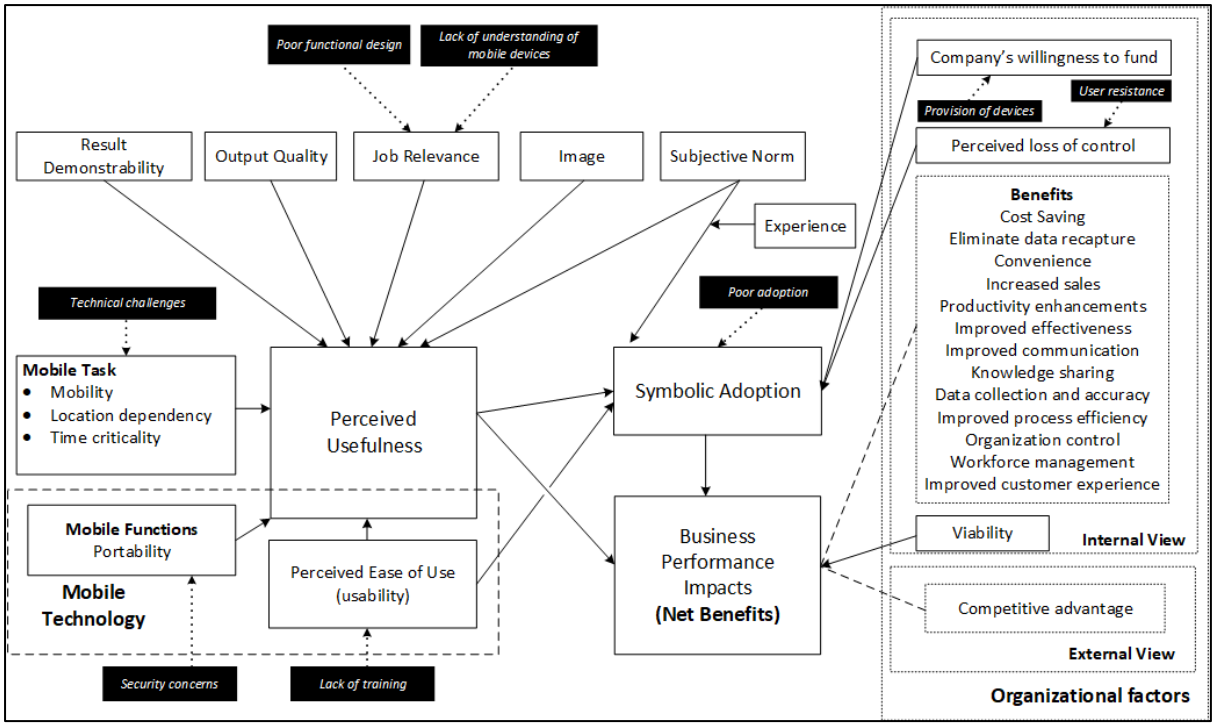


*Figure 15: Resultant adoption and benefits model for MEA*

Each of the constructs in this model was discussed in the findings' chapters of this thesis. The value of this model to practice was explained by a study participant,

*"I like this model because all of these (pointing to the factors) add to perceived usefulness, it's all about perception. What creates value for people out there is not what brings benefits for us. But if you understand what improves adoption then once people start using the app, we will get the benefits. I think this is nice, it makes sense. It gives you a different perspective on let's say we have this requirement and we are busy conceptualising the project and scoping it. If we were to use this model to start having the benefits discussion, it gives you a perspective on what might add to usefulness or not. We tend to come from a very functional inside-out focus. We think we play that role of standing in the brokers shoes looking in. But with this, how will he tell his friends that this app works? What are the quality criteria for him? How does he include it in his job? It gives you a template from a different perspective to start talking about benefits and how you will reach those benefits without jumping to the functionality first and the assumption of they will just have to use it. You can have the conversation of what can make this useful for the broker, ask those questions, do prototypes of different scenarios of what you're thinking about. Then you can understand which of these benefits we want to achieve with it ".*

The theoretical contribution of this model is that it adds to the theory for mobile apps. The benefits in the model can have a positive impact on business performance, and the model is therefore relevant to practitioners as well as researchers that are implementing and investigating mobile apps.

# 12. References


Agarwal, R., & Prasad, J. (1997). The role of innovation characteristics and perceived voluntariness in the acceptance of information technologies. *Decision Sciences, 28*(3), 557-582.

Agerfalk, P., Aakhus, M., & Lind, M. (2008). Proceedings of the inaugural meeting of AIS SIGPrag.

Alahuhta, P., Ahola, J., & Hakala, H. (2005). Mobilizing business applications. *Technology Review, 167*(2005).

Albertin, A. L., & Sanchez, O. P. (2008). *Outsourcing de TI impacts, dilemmas, discussions and real cases (pp. 27-45). Rio de Janeiro: FGV.*

Anckar, B., & D'incau, D. (2002). Value creation in mobile commerce: Findings from a consumer survey. *JITTA: Journal of Information Technology Theory and Application, 4*(1), 43.

Andresen, J., Baldwin, A., Betts, M., Carter, C., Hamilton, A., Stokes, E., & Thorpe, T. (2002). A framework for measuring IT innovation benefits. *Journal of Information Technology in Construction (ITcon), 5*(4), 57-72.

Arxan. (2016). Enterprise app trend report. Retrieved from https://www.arxan.com/enterprise-app-trends on 23 June 2018.

Argyropoulou, M., Ioannou, G., Koufopoulos, D. N., & Motwani, J. (2009). Measuring the impact of an ERP project at SMEs: A framework and empirical investigation. *International Journal of Enterprise Information Systems (IJEIS), 5*(3), 1-13.

Ashurst, C., Doherty, N. F., & Peppard, J. (2008). Improving the impact of IT development projects: The benefits realisation capability model. *European Journal of Information Systems, 17*(4), 352-370.

Ashurst, C., & Hodges, J. (2010). Exploring business transformation: The challenges of developing a benefits realisation capability. *Journal of Change Management, 10*(2), 217-237.

Avison, D. E., Davison, R. M., & Malaurent, J. (2018). Information systems action research: Debunking myths and overcoming risks. *Information & Management, 55*(2), 177-187.

Avison, D. E., Lau, F., Myers, M. D., & Nielsen, P. A. (1999). Action research. *Communications of the ACM, 42*(1), 94-97.

Balasubramanian, S., Peterson, R. A., & Jarvenpaa, S. L. (2002). Exploring the implications of m-commerce for markets and marketing. *Journal of the Academy of Marketing Science, 30*(4), 348-361.

Badewi, A. (2016). The impact of project management (PM) and benefits management (BM) practices on project success: Towards developing a project benefits governance framework. *International Journal of Project Management, 34*(4), 761-778.

Bagozzi, R. P. (2007). The legacy of the technology acceptance model and a proposal for a paradigm shift. *Journal of the Association for Information Systems, 8*(4), 3.

Barki, H., & Hartwick, J. (2001). Interpersonal conflict and its management in information system development. *Mis Quarterly, 25(2)*, 195-228.

Baskerville, R., & Myers, M. D. (2004). Special issue on action research in information systems: Making IS research relevant to practice. *Mis Quarterly, 28*(3), 329-335.

Baskerville, R. L., & Wood-Harper, A. T. (1996). A critical perspective on action research as a method for information systems research. *Journal of Information Technology, 11*(3), 235-246.

Baskerville, R., & Wood-Harper, A. T. (1998). Diversity in information systems action research methods. *European Journal of Information Systems, 7*(2), 90-107.

Baskerville, R. (2008). What design science is not. *European Journal of Information Systems, 17*(5), 441-443.

Basole, R. C. (2004). The value and impact of mobile information and communication technologies. Paper presented at the *Proceedings of the IFAC Symposium on Analysis, Modeling & Evaluation of Human-Machine Systems,* 1-7.

Basole, R. C. (2005a). Mobilizing the enterprise: A conceptual model of transformational value and enterprise readiness. Paper presented at the *26th ASEM National Conference Proceedings,* 364-371.

Basole, R. C. (2005b). Transforming enterprises through mobile apps: A multi-phase framework. *Proceedings of the Americas Conference on Information Systems, AMCIS 2005* 1935-1939.

Basole, R. C. (2006). No title. *Modelling and Analysis of Complex Technology Adoption Decisions: An Investigation in the Domain of Mobile ICT,*

Basole, R. (2007). Strategic planning for enterprise mobility: A readiness-centric approach. *Proceedings of the 2007 Americas conference of Information Systems*, 2007.

Basole, R. C. (2009). Visualization of interfirm relations in a converging mobile ecosystem. *Journal of Information Technology, 24*(2), 144-159.

Benbasat, I., & Barki, H. (2007). Quo vadis TAM? *Journal of the Association for Information Systems, 8*(4), 7.

Bhattacherjee, A. (2012). Social science research: Principles, methods, and practices. USF

Open Access Textbooks Collection. Book 3.

Boell, S. K., & Cecez-Kecmanovic, D. (2015). Debating systematic literature reviews (SLR) and their ramifications for IS: A rejoinder to Mike Chiasson, Briony Oates, Ulrike Schultze, and Richard Watson. *Journal of Information Technology, 30*(2), 188-193.

Borg, A., & Skidmore, S. (2015). *Enterprise app adoption: Get the maximum value from your enterprise mobile apps investment.* Unpublished manuscript.

Bouwman, H., & van de Wijngaert, L. (2009). Coppers context, and conjoints: A reassessment of TAM. *Journal of Information Technology, 24*(2), 186-201.

Braun, J., Ahlemann, F., & Riempp, G. (2009). Benefits management-A literature review and elements of a research agenda. Paper presented at the *Wirtschaftsinformatik (1),* 555-566.

Breese, R., Jenner, S., Serra, C. E. M., & Thorp, J. (2015). Benefits management: Lost or found in translation. *International Journal of Project Management, 33*(7), 1438-1451.

Cameron, R. (2011). Mixed methods research: The five ps framework. *Electronic Journal of Business Research Methods, 9*(2)

Campos, J., Jantunen, E., Baglee, D., Gilabert, E., Fumagalli, L., & Emmanouilidis, C. (2016). The use of mobile technologies and their economic benefits in maintenance. Paper presented at the *Proceedings of the 10th World Congress on Engineering Asset Management (WCEAM 2015),* 113-119.

Cerf, V. G. (2001). Beyond the post-PC internet. *Communications of the ACM, 44*(9), 35.

Changchit, C., Joshi, K. D., & Lederer, A. L. (1998). Process and reality in information systems benefit analysis. *Information Systems Journal, 8*(2), 145-162.

Chandler, D., & Torbert, B. (2003). Transforming inquiry and action interweaving 27 flavours of action research. *Action Research, 1*(2), 133-152.

Chatterjee, S., Chakraborty, S., Sarker, S., Sarker, S., & Lau, F. Y. (2009). Examining the success factors for mobile work in healthcare: A deductive study. *Decision Support Systems, 46*(3), 620-633.

Checkland, P., & Holwell, S. (2007). Action research. *Information systems action research* (pp. 3-17) Springer.

Chen, L., & Nath, R. (2004). A framework for mobile business applications. *International Journal of Mobile Communications, 2*(4), 368-381.

Chen, L., & Nath, R. (2008). A socio-technical perspective of mobile work. *Information Knowledge Systems Management, 7*(1, 2), 41-60.

Chih, Y., & Zwikael, O. (2015). Project benefit management: A conceptual framework of target benefit formulation. *International Journal of Project Management, 33*(2), 352-362.

Chung, S., Lee, K. Y., & Kim, K. (2014). Job performance through mobile enterprise systems: The role of organisational agility, location independence, and task characteristics. *Information & Management, 51*(6), 605-617.

Clevenger, N. (2011). *iPad in the enterprise: Developing and deploying business applications* John Wiley & Sons.

Cohen, L., Manion, L., & Morrison, K. (2007). *Research methods in education*. London: RoutledgeFalmer.

Converse, J. M., & Presser, S. (1986). *Survey questions: Handcrafting the standardized questionnaire* Sage.

Coombs, C. R. (2015). When planned IS/IT project benefits are not realised: A study of inhibitors and facilitators to benefits realisation. *International Journal of Project Management, 33*(2), 363-379.

Davenport, T. H., Harris, J. G., & Cantrell, S. (2002). The return of enterprise systems: The director's cut. *Accenture Institute for Strategic Change, New York.*

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13(3)*, 319-340.

Davis, F. D., Bagozzi, R. P., & Warshaw, P. R. (1992). Extrinsic and intrinsic motivation to use computers in the workplace1. *Journal of Applied Social Psychology, 22*(14), 1111-1132.

Davison, R., Martinsons, M. G., & Kock, N. (2004). Principles of canonical action research. *Information Systems Journal, 14*(1), 65-86.

Davison, R., & Martinsons, M. (2007) (Ed.), *Information systems action research: An applied view of emerging concepts and methods*. New York, NY: Springer Science & Business Media.

Davison, R. M., Martinsons, M. G., & Ou, C. X. (2012). The roles of theory in canonical action research. *MIS Quarterly, 36(3)*, 763-786.

De Moraes, H., Cunha, M., & Terlizzi, M. A. (2017). IT indicators and organisational performance: A study of the retail sector in Brazil. *CONF-IRM 2017 Proceedings. 16*. http://aisel.aisnet.org/confirm2017/16

DeCoster, J. (1998). *Overview of factor analysis*. Retrieved December 12, 2018 from http://www.stat-help.com/notes.html

DeLone, W. H., & McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research, 3*(1), 60.

Devaraj, S., & Kohli, R. (2003). Performance impacts of information technology: Is actual usage the missing link? *Management Science, 49*(3), 273-289.

Dewey, J. (1931). *The way out of educational confusion* Harvard University Press.

Doherty, N. F., Ashurst, C., & Peppard, J. (2012). Factors affecting the successful realisation of benefits from systems development projects: Findings from three case studies. *Journal of Information Technology, 27*(1), 1-16.

Duyshart, B., Walker, D., Mohamed, S., & Hampson, K. (2003). An example of developing a business model for information and communication technologies (ICT) adoption on

construction projects-the national museum of Australia project. *Engineering, Construction and Architectural Management, 10*(3), 179-192.

Eden, C., & Huxham, C. (1996). Action research for management research. *British Journal of Management, 7*(1), 75-86.

Espinoza, R. D. (2014). Separating project risk from the time value of money: A step toward integration of risk management and valuation of infrastructure investments. *International Journal of Project Management, 32*(6), 1056-1072.

Farbey, B., Targett, D., & Land, F. (1994). The great IT benefit hunt. *European Management Journal, 12*(3), 270-279.

Feilzer, M. (2010). Doing mixed methods research pragmatically: Implications for the rediscovery of pragmatism as a research paradigm. *Journal of Mixed Methods Research, 4*(1), 6-16.

Fereday, J., & Muir-Cochrane, E. (2008). Demonstrating rigor using thematic analysis: A hybrid approach of inductive and deductive coding and theme development. *International Journal of Qualitative Methods, 5*(1), 80-92.

Fishbein, M., & Ajzen, I. (1975). Belief. *Attitude, Intention and Behavior: An Introduction to Theory and Research Reading, MA: Addison-Wesley, 6.*

Forrester Research. (2017). Data, Mobile, Smartphone and tablet forecast. Retrieved from https://www.forrester.com/report/Forrester+Data+Mobile+Smartphone+And+Tablet+Forecast+2017+To+2022+Global/-/E-RES138971

Freeman, P., & Seddon, P. (2004). Factors affecting the realisation of benefits from CRM packaged software-based work systems. *PACIS 2004 Proceedings* 1765-1778.

Friedman, A. L., & Cornford, D. S. (1989). *Computer systems development: History organisation and implementation* John Wiley & Sons, Inc.

Gable, G. G. (1994). Integrating case study and survey research methods: An example in information systems. European Journal of Information Systems, 3(2), 112-126.

Galliers, R. D., & Somogyi, S. K. (1987). From data processing to strategic information systems: A historical perspective. *Towards Strategic Information Systems, Abacus Press, pp.* 5-25.

Gammelgård, M., Ekstedt, M., & Gustafsson, P. (2006). A categorization of benefits from IS/IT investments. Paper presented at the *Proceedings of the 13th European Conference on Information Technology Evaluation.*

Gao, S., Krogstie, J., & Siau, K. (2011). Developing an instrument to measure the adoption of mobile services. *Mobile Information Systems, 7*(1), 45-67.

Gardner, C., & Amoroso, D. L. (2004). Development of an instrument to measure the acceptance of internet technology by consumers. Paper presented at the *Proceedings of the 37th Annual Hawaii International Conference On System Science.*

Gebauer, J. (2008). User requirements of mobile technology: A summary of research results. *Information Knowledge Systems Management, 7*(1, 2), 101-119.

Gebauer, J., & Shaw, M. J. (2004). Success factors and impacts of mobile business applications: Results from a mobile e-procurement study. *International Journal of Electronic Commerce, 8*(3), 19-41.

Gebauer, J., Shaw, M. J., & Gribbins, M. L. (2010). Task-technology fit for mobile information systems. *Journal of Information Technology, 25*(3), 259-272.

Gebauer, J., Shaw, M. J., & Subramanyam, R. (2007). Once built well, they might come: An empirical study of mobile e-mail. *College of Business Working Paper 07-0117*. University of Illinois at Urbana-Champaign. Last updated October 5, 2007.

Gebauer, J., Shaw, M., & Zhao, K. (2002). Assessing the value of emerging technologies: The case of mobile technologies to enhance business-to-business applications. *BLED 2002 Proceedings,*6.

Gefen, D., Straub, D., & Boudreau, M. (2000). Structural equation modeling and regression: Guidelines for research practice. *Communications of the Association for Information Systems, 4*(1), 7.

Ghose, A., & Han, S. P. (2014). Estimating demand for mobile apps in the new economy. *Management Science, 60*(6), 1470-1488.

Giaglis, G. M., Rangone, A., & Renga, F. M. (2006). B2e mobile internet: An exploratory study of italian applications. *Business Process Management Journal, 12*(3), 330-343.

Giessmann, A., Stanoevska-Slabeva, K., & De Visser, B. (2012). Mobile enterprise applications--current state and future directions. Paper presented at the *System Science (HICSS), 2012 45th Hawaii International Conference On,* 1363-1372.

Gilbert, D., Balestrini, P., & Littleboy, D. (2004). Risks and benefits in the adoption of e-government. *International Journal of Public Sector Management, 17*(4), 286-301.

Gliem, J. A., & Gliem, R. R. (2003). Calculating, interpreting, and reporting cronbach's alpha reliability coefficient for likert-type scales. Paper presented at the *Midwest Research to Practice Conference in Adult, Continuing and Community Education,* Columbus, OH.

Goldkuhl, G. (2004). Meanings of Pragmatism: Ways to conduct information systems research. *Proceeding of the 2nd International Conference on Action in Language, Organisations and Information Systems,* Linkoping University, Sweden.

Goldkuhl, G. (2008). What kind of Pragmatism in information systems research? *In AIS SIG Prag Meeting*.

Goldkuhl, G. (2012). Pragmatism vs interpretivism in qualitative information systems research. *European Journal of Information Systems, 21*(2), 135-146.

Gordon, S. P. (2016). Expanding our horizons: Alternative approaches to practitioner research. *Journal of Practitioner Research, 1*(1), 2.

Goyette, S., & Cassivi, L. (2017). Towards a new conceptualization of information system benefits assessment. Paper presented at the *Proceedings of the 19th International Conference on Enterprise Information Systems ICEIS (2) 2017*.

Grant, M. J., & Booth, A. (2009). A typology of reviews: An analysis of 14 review types and associated methodologies. *Health Information & Libraries Journal, 26*(2), 91-108.

Gregor, S. (2006). The nature of theory in information systems. *MIS Quarterly, 30(3)*, 611-642.

Gribbins, M., Shaw, M., & Gebauer, J. (2003). An investigation into employees' acceptance of integrating mobile commerce into organisational processes. *AMCIS 2003 Proceedings, Tampa, FL*, pp. 77-87.

Gröger, C., Silcher, S., Westkämper, E., & Mitschang, B. (2013). Leveraging apps in manufacturing. A framework for app technology in the enterprise. *Procedia CIRP, 7*, 664-669.

Gunasekaran, A., Ngai, E., & McGaughey, R. E. (2008). Information technology and systems justification. *Evaluating Information Systems, 1*, 1-34.

Hartwick, J., & Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science, 40*(4), 440-465.

Hasan, B., Gómez, J. M., & Kurzhöfer, J. (2013). Towards a framework for designing secure mobile enterprise applications. Paper presented at the *Third International Conference on Mobile Services, Resources, and Users,* 90-93.

Hayes, A. (2013). introduction to mediation, moderation, and conditional process analysis: A Regression-Based approach. New York, NY: The Guilford Press *Journal of Educational Measurement, 51*(3), 335-337.

Heck, M. (2004). Mobilizing the enterprise. *InfoWorld, 26*(19), 24-26.

Hesselmann, F., & Kunal, M. (2014). Where are we headed with benefits management research? current shortcomings and avenues for future research. ECIS 2014 Proceedings.

Hitt, L. M., & Brynjolfsson, E. (1996). Productivity, business profitability, and consumer surplus: Three different measures of information technology value. *MIS Quarterly, 20(2)*, 121-142.

Hochstrasser, B. (1993). Quality engineering: A new framework applied to justifying and prioritising IT investments. *European Journal of Information Systems, 2*(3), 211-223.

Hoehle, H., Zhang, X., & Venkatesh, V. (2015). An espoused cultural perspective to understand continued intention to use mobile apps: A four-country study of mobile social media application usability. *European Journal of Information Systems, 24*(3), 337-359.

Hoos, E., Gröger, C., Kramer, S., & Mitschang, B. (2014). Improving business processes through mobile apps-an analysis framework to identify value-added app usage scenarios. Paper presented at the *Iceis (2),* 71-82.

Hoos, E., Gröger, C., Kramer, S., & Mitschang, B. (2015). ValueApping: An analysis method to identify value-adding mobile enterprise apps in business processes. *Enterprise information systems* (pp. 222-243) Springer.

Hurley, H., Lai, E., & Piquet, L. J. (2011). *Enterprise mobility guide 2011.* Sybase 2011.

Irani, Z. (2002). Information systems evaluation: Navigating through the problem domain. *Information & Management, 40*(1), 11-24.

Ismail, N. (2017). Mobile in the enterprise and the changing role of the CIO. Retrieved from http://www.information-age.com/mobile-enterprise-2-123468577/

Jaafari, J. (2015). 4 technologies that are revolutionizing the insurance industry. Retrieved from http://www.propertycasualty360.com/2015/02/03/4-technologies-that-are-revolutionizing-the-insura?slreturn=1459075557&page=3

James, W. (1907). *Pragmatism's conception of truth* Wiley Online Library.

Järvinen, P. (2007). Action research is similar to design science. *Quality & Quantity, 41*(1), 37-54.

Junglas, I., & Watson, R. (2003). U-commerce: A conceptual extension of e-commerce and m-commerce. *ICIS 2003 Proceedings, Seattle, WA*, 55.

Kaasinen, E. (2009). User acceptance of mobile services. *International Journal of Mobile Human Computer Interaction (IJMHCI), 1*(1), 79-97.

Kakihara, M., & Sørensen, C. (2001). Expanding the'mobility'concept. *ACM SIGGroup Bulletin, 22*(3), 33-37.

Kalakota, R., Robinson, M., & Kalakota, D. R. (2002). *M-business: The race to mobility* McGraw-Hill New York, NY.

Kaplan, B., & Maxwell, J. (2005). Qualitative research methods for evaluating computer information systems. *Evaluating the Organisational Impact of Healthcare Information Systems (2nd Ed), Springer, New York, NY, pp.* 30-55.

Karahanna, E., & Agarwal, R. (2006). When the spirit is willing: Symbolic adoption and technology exploration. *University of Georgia, Athens, GA,*

Kauffman, R. J., & Kriebel, C. H. (1988). Modeling and measuring the business value of information technology. Working paper no. 193. Centre for Research on Information Systems, Stern School of Business, New York University, December 1988.

Kaur, A., & Kaur, K. (2015). Suitability of existing software development life cycle (SDLC) in context of mobile application development life cycle (MADLC). *International Journal of Computer Applications, 116*(19)

Keller, G. & Warrack, B. (Ed.) *Statistics for management and economics* (5th ed.). Pacific Grove, CA, USA: Duxbury Press. Thomson Learning.

Kelman, H. C. (1958). Compliance, identification, and internalization three processes of attitude change. *Journal of Conflict Resolution, 2*(1), 51-60.

Kelton Research. (2011). Sybase survey finds mobile enterprise apps poised to take off in 2011. Retrieved from http://www.prnewswire.com/news-releases/sybase-survey-finds-mobile-enterprise-apps-poised-to-take-off-in-2011-113347059.html

Kim, B., Choi, M., & Han, I. (2009). User behaviors toward mobile data services: The role of perceived fee and prior experience. *Expert Systems with Applications, 36*(4), 8528-8536.

Kim, H., Chan, H. C., & Gupta, S. (2007). Value-based adoption of mobile internet: An empirical investigation. *Decision Support Systems, 43*(1), 111-126.

Kim, S. H. (2008). Moderating effects of job relevance and experience on mobile wireless technology acceptance: Adoption of a smartphone by individuals. *Information & Management, 45*(6), 387-393.

Kleinrock, L. (2001). Breaking loose. *Communications of the ACM, 44*(9), 41-46.

Krogstie, J. (2009). Usable M-commerce systems. *Encyclopedia of information science and technology, second edition* (pp. 3904-3908) IGI Global.

Krogstie, J., Lyytinen, K., Opdahl, A. L., Pernici, B., Siau, K., & Smolander, K. (2004). Research areas and challenges for mobile information systems. *International Journal of Mobile Communications, 2*(3), 220-234.

Lee, S. (2016). User behaviour of mobile enterprise applications. *KSII Transactions on Internet & Information Systems, 10*(8).

Lee, M. K., Cheung, C. M., & Chen, Z. (2005). Acceptance of internet-based learning medium: The role of extrinsic and intrinsic motivation. *Information & Management, 42*(8), 1095-1104.

Lee, T. M., & Park, C. (2008). Mobile technology usage and B2B market performance under mandatory adoption. *Industrial Marketing Management, 37*(7), 833-840.

Legris, P., Ingham, J., & Collerette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management, 40*(3), 191-204.

Lewins, & A.Silver, C. (2014). *Using software in qualitative research: A step-by-step guide* Sage.

Leung, K., & Antypas, J. (2001). Improving returns on m-commerce investments. *Journal of Business Strategy, 22*(5), 12-13.

Liang, T., & Wei, C. (2004). Introduction to the special issue: Mobile commerce applications. *International Journal of Electronic Commerce, 8*(3), 7-17.

Liang, T., Huang, C., Yeh, Y., & Lin, B. (2007). Adoption of mobile technology in business: A fit-viability model. *Industrial Management & Data Systems, 107*(8), 1154-1169.

Lin, C., & Pervan, G. (2003). The practice of IS/IT benefits management in large Australian organisations. *Information & Management, 41*(1), 13-24.

Lin, C., Pervan, G., & McDermid, D. (2005). IS/IT investment evaluation and benefits realisation issues in Australia. *Journal of Research and Practice in Information Technology, 37*(3), 235.

Lindley, J. T., Topping, S., & Lindley, T. (2008). The hidden financial costs of ERP software. Managerial Finance, 34(2), 78-90.

Love, P. E., Irani, Z., Standing, C., Lin, C., & Burn, J. M. (2005). The enigma of evaluation: Benefits, costs and risks of IT in Australian small–medium-sized enterprises. *Information & Management, 42*(7), 947-964.

Lyytinen, K., & Rose, G. M. (2003). The disruptive nature of information technology innovations: The case of internet computing in systems development organisations. *MIS Quarterly, 27(4)*, 557-596.

Lyytinen, K., & Yoo, Y. (2002). Research commentary: The next wave of nomadic computing. *Information Systems Research, 13*(4), 377-388.

Maes, K., De Haes, S., & Van Grembergen, W. (2017). A business case process for IT-enabled investments: Its perceived effectiveness from a practitioner perspective. *Strategic IT governance and alignment in business settings* (pp. 1-23) IGI Global.

Malhotra, N. K., Kim, S. S., & Patil, A. (2006). Common method variance in IS research: A comparison of alternative approaches and a reanalysis of past research. *Management Science, 52*(12), 1865-1883.

Mangan, J., Lalwani, C., & Gardner, B. (2004). Combining quantitative and qualitative methodologies in logistics research. *International Journal of Physical Distribution & Logistics Management, 34*(7), 565-578.

Manyika, J., Chui, M., Bughin, J., Dobbs, R., Bisson, P., & Marrs, A. (2013). *Disruptive technologies: Advances that will transform life, business, and the global economy.* McKinsey Global Institute.

Marchand, D. A., & Peppard, J. (2008). *Designed to fail: Why IT projects underachieve and what to do about it* IMD International, vol.11.

Marcelino-Sádaba, S., Pérez-Ezcurdia, A., Lazcano, A. M. E., & Villanueva, P. (2014). Project risk management methodology for small firms. *International Journal of Project Management, 32*(2), 327-340.

Markova, M., & Aula, A. (2007). Conceptualizing how usability of mobile services affects business performance. Paper presented at the *Management of Mobile Business, 2007. ICMB 2007. International Conference on The,* 36.

Marnewick, C. (2016). Benefits of information system projects: The tale of two countries. *International Journal of Project Management, 34*(4), 748-760.

Maxwell, J. A. (1992). Understanding and validity in qualitative research. *Harvard Educational Review, 62*(3), 279-301.

Mead, G. H. (1938). *The philosophy of the act* University of Chicago Pr.

Melville, N., Kraemer, K., & Gurbaxani, V. (2004). Review: Information technology and organisational performance: An integrative model of IT business value. *MIS Quarterly, 28*(2), 283-322.

Mordhorst, M. (2014). *How to help enterprises going mobile: Investigation on influences and requirements of business apps within enterprise mobility* Anchor Academic Publishing (aap verlag).

Mooney, J. G., Gurbaxani, V., & Kraemer, K. L. (1996). A process-oriented framework for assessing the business value of information technology. *ACM SIGMIS Database, 27*(2), 68-81.

Moore, G. C., & Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2*(3), 192-222.

Murphy, K. E., & Simon, S. J. (2002). Intangible benefits valuation in ERP projects. *Information Systems Journal, 12*(4), 301-320.

Myers, M. D. (1995). Dialectical hermeneutics: A theoretical framework for the implementation of information systems. *Information Systems Journal, 5*(1), 51-70.

Nah, F. F., Siau, K., & Sheng, H. (2005). The value of mobile apps: A utility company study. *Communications of the ACM, 48*(2), 85-90.

Nah, F. F., Tan, X., & Teh, S. H. (2004). An empirical investigation on end-users' acceptance of enterprise systems. *Information Resources Management Journal (IRMJ), 17*(3), 32-53.

Ngai, E. W., & Gunasekaran, A. (2007). A review for mobile commerce research and applications. *Decision Support Systems, 43*(1), 3-15.

Nelson, R. (2007). IT project management: Infamous failures, classic mistakes, and best practices. *MIS Quarterly Executive, 6*(2)

Newman, M., & Robey, D. (1992). A social process model of user-analyst relationships. *MIS Quarterly,16(2)*, 249-266.

Nielsen, P. A. (2007). IS action research and its criteria. *Information systems action research* (pp. 355-375) Springer.

Nielsen, P. A., & Persson, J. S. (2017). Useful business cases: Value creation in IS projects. *European Journal of Information Systems, 26*(1), 66-83.

Oates, B. J., Edwards, H., & Wainwright, D. W. (2012). A model-driven method for the systematic literature review of qualitative empirical research.

Orlikowski, W., & Baroudi, J. J. (1990). Studying information technology in organisations: Research approaches and assumptions. *Information Systems Res*, 2(1), 1-28.

Ovčjak, B., Heričko, M., & Polančič, G. (2015). Factors impacting the acceptance of mobile data services–A systematic literature review. *Computers in Human Behaviour, 53*, 24-47.

Paavilainen, J. (2002). *Mobile business strategies: Understanding the technologies and opportunities.* Pearson Education.

Paré, G., Trudel, M., Jaana, M., & Kitsiou, S. (2015). Synthesizing information systems knowledge: A typology of literature reviews. *Information & Management, 52*(2), 183-199.

Pavin, R. D. P., & Klein, A. Z. (2015). Organisational consequences of the adoption of mobile ERP systems: Case studies in brazil. *JISTEM-Journal of Information Systems and Technology Management, 12*(2), 219-232.

Pee, L. G., Kankanhalli, A., Tan, G. W., & Tham, G. Z. (2014). Mitigating the impact of member turnover in information systems development projects. *IEEE Transactions on Engineering Management, 61*(4), 702-716.

Peirce, C. S. (1931). *Collected papers of Charles Sanders Peirce.* Belknap Press.

Peppard, J., Ward, J., & Daniel, E. (2007). Managing the realisation of business benefits from IT investments. *MIS Quarterly Executive, 6*(1)

Percentage of all global (2018). Percentage of all global web pages served to mobile phones from 2009 to 2018. Retrieved from https://www.statista.com/statistics/241462/global-mobile-phone-website-traffic-share/

Pettey, C. (2011). Gartner identifies the top 10 strategic technologies for 2011. *Gartner Http://Www.Gartner.Com/it/Page.Jsp*,

Pettigrew, A. M. (1990). Longitudinal field research on change: Theory and practice. *Organisation Science, 1*(3), 267-292.

Pfeffer, J. (1981). *Power in organisations.* Pitman Marshfield, MA.

Picoto, W. N., Palma-dos-Reis, A., & Bélanger, F. (2010). How does mobile business create value for firms? Paper presented at the *Mobile Business and 2010 Ninth Global Mobility Roundtable (ICMB-GMR), 2010 Ninth International Conference On,* 9-16.

Pitt, L., Berthon, P., & Robson, K. (2011). Deciding when to use tablets for business applications. *MIS Quarterly Executive, 10*(3)

PMI's Pulse of the Profession. (2016). *Delivering value - focus on benefits during project execution*. Newtown Square, PA: USA: Project Management Institute.

Preston, B. (2015). Insurers worry that self-driving cars can put a dent in their business. *The Guardian*

PWC. (2015). Insurance 2020: Turning change into opportunity. Retrieved from http://www.pwc.com/gx/en/industries/financial-services/insurance/publications/future-of-insurance.html

Ranjan, J., & Bhatnagar, V. (2009). A holistic framework for mCRM-data mining perspective. *Information Management & Computer Security, 17*(2), 151-165.

Rangone, A., & Renga, F. M. (2006). B2e mobile internet: An exploratory study of Italian applications. *Business Process Management Journal, 12*(3), 330-343.

Rangone, A., Renga, F., Catti, P., Mitrione, F., & Mondini, C. (2007). Mobile & wireless business applications in the Italian utility market: An empirical study and a decision model. Paper presented at the *International Conference on the Management of Mobile Business. ICMB 2007.*

Remenyi, D. (2000). The elusive nature of delivering benefits from IT investment. *Electronic Journal of Information Systems Evaluation, 3*(1), 1-10.

Remenyi, D., Sherwood-Smith, M. (2000). IT Investment: Making a Business Case. London: Routledge.

Remenyi, D., White, T., & Sherwood-Smith, M. (1997). *Achieving maximum value from information systems: A process approach* John Wiley & Sons, Inc.

Rogers, E. (1995). *Diffusion of innovation* New York: Free Press.

Rouibah, K. (2009). Intention to use camera mobile phone before E-shopping in the Arab world: Test of the applicability of TAM 2. Paper presented at the *IADIS International Conference Information Systems,* 3-9.

Rowe, F. (2014). What Literature Review is Not: Diversity, Boundaries and Recommendations*. European Journal of Information Systems 23 (3), 241-255.*

Rus, I., Lindvall, M., & Sinha, S. (2002). Knowledge management in software engineering. *IEEE Software, 19*(3), 26-38.

Saunders, M., Lewis, P., & Thornhill, A. (2009). *Research methods for business students* Prentice Hall.

Schierholz, R., Schierholz, R., Kolbe, L. M., & Brenner, W. (2007). Mobilizing customer relationship management: A journey from strategy to system design. *Business Process Management Journal, 13*(6), 830-852.

Schmidt, R., Lyytinen, K., Keil, M., & Cule, P. (2001). Identifying software project risks: An international delphi study. *Journal of Management Information Systems, 17*(4), 5-36.

Schutz, R. E. (1966). The control of" error" in educational experimentation. *The School Review, 74*(2), 150-158.

Scornavacca, E., & Barnes, S. J. (2008). The strategic value of enterprise mobility: Case study insights. *Information Knowledge Systems Management, 7*(1, 2), 227-241.

Scott, M., DeLone, W. H., & Golden, W. (2011). IT quality and e-government net benefits: A citizen perspective. Paper presented at the *Ecis,* 87.

Seale, C. (2002). Quality issues in qualitative inquiry. *Qualitative Social Work, 1*(1), 97-110.

Seddon, P., Graeser, V., & Willcocks, L. (2001). IT evaluation revisited: Plus ca change…. Paper presented at the *Proceedings, on Eight European Conference on Information Technology (ECITE), Oxford, United Kingdom,*

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research, 8*(3), 240-253.

Serra, C. E. M., & Kunc, M. (2015). Benefits realisation management and its influence on project success and on the execution of business strategies. *International Journal of Project Management, 33*(1), 53-66.

Seymour, L., Makanya, W., & Berrangé, S. (2007). End-users' acceptance of enterprise resource planning systems: An investigation of antecedents. Paper presented at the *Proceedings of the 6th Annual ISOnEworld Conference,* 1-22.

Shaikh, A. A., & Karjaluoto, H. (2015). Making the most of information technology & systems usage: A literature review, framework and future research agenda. *Computers in Human Behavior, 49*, 541-566.

Sheng, H., Nah, F. F., & Siau, K. (2005). Strategic implications of mobile technology: A case study using value-focused thinking. *The Journal of Strategic Information Systems, 14*(3), 269-290.

Siau, K., Ee-Peng, L., & Shen, Z. (2001). Mobile commerce: Promises, challenges, and research agenda. *Journal of Database Management, 12*(3), 4.

Silk, D. J. (1990). Managing IS benefits for the 1990s. *Journal of Information Technology, 5*(4), 185-193.

Sivakumar, M., & Reddy, U. S. (2015). A short review for mobile apps of sentiment analysis on various domains. *Progress in systems engineering* (pp. 723-726) Springer.

Skinner, E. A., Chapman, M., & Baltes, P. B. (1988). Control, means-ends, and agency beliefs: A new conceptualization and its measurement during childhood. *Journal of Personality and Social Psychology, 54*(1), 117.

Smith, D. C., Dombo, H., & Nkehli, N. (2008). Benefits realisation management in information technology projects. Paper presented at the *Management of Engineering & Technology, 2008. PICMET 2008. Portland International Conference On,* 1442-1455.

Spector, P. E. (1986). Perceived control by employees: A meta-analysis of studies concerning autonomy and participation at work. *Human Relations, 39*(11), 1005-1016.

Statista. (2018). Number of smartphone users worldwide from 2014 to 2020 (in billions). Retrieved from https://www.statista.com/statistics/330695/number-of-smartphone-users-worldwide/

Stieglitz, S., & Brockmann, T. (2012). Increasing organisational performance by transforming into a mobile enterprise. *MIS Quarterly Executive, 11*(4)

Straub Jr, D. W., & Burton-Jones, A. (2007). Veni, vidi, vici: Breaking the TAM logjam. *Journal of the Association for Information Systems, 8*(4), 223.

Swanson, R. A. (1995). Human resource development: Performance is the key. *Human Resource Development Quarterly, 6*(2), 207-213.

Tallon, P. P., Kraemer, K. L., & Gurbaxani, V. (2000). Executives' perceptions of the business value of information technology: A process-oriented approach. *Journal of Management Information Systems,* , 145-173.

Talukder, M. (2012). Factors affecting the adoption of technological innovation by individual employees: An Australian study. *Procedia - Social and Behavioral Sciences, 40*, 52-57.

Tashakkori, A., & Teddlie, C. (1998). *Mixed methodology: Combining qualitative and quantitative approaches* Sage.

Tate, M., Furtmueller, E., Evermann, J., & Bandara, W. (2015). Introduction to the special issue: The literature review in information systems. *Communications of the Association for Information Systems, 37(*5), 103-111.

Tavakol, M., & Dennick, R. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education, 2*, 53.

Teltumbde, A. (2000). A framework for evaluating ERP projects. *International Journal of Production Research, 38*(17), 4507-4520.

Terlizzi, M. A., Albertin, A. L., & De Moraes, H. (2017). IT benefits management in financial institutions: Practices and risks. *International Journal of Project Management, 35*(5), 763-782.

Tetrick, L. E., & LaRocco, J. M. (1987). Understanding, prediction, and control as moderators of the relationships between perceived stress, satisfaction, and psychological well-being. *Journal of Applied Psychology, 72*(4), 538.

Thomas, G., & Fernández, W. (2008). Success in IT projects: A matter of definition? *International Journal of Project Management, 26*(7), 733-742.

Truax, J. (1997). Investing with benefits in mind: Curing investment myopia. *The DMR White Paper, 1*(6)

Turner, R., & Ledwith, A. (2016). Project management in small to Medium-Sized enterprises: Fitting the practices to the needs of the firm to deliver benefit. *Journal of Small Business Management, 81(1), 32-38.*

Unhelkar, B., & Murugesan, S. (2010). The enterprise mobile apps development framework. *IT Professional, 12*(3), 33.

Urbaczewski, A., Wells, J., Sarker, S., & Koivisto, M. (2002). Exploring cultural differences as a means for understanding the global mobile internet: A theoretical basis and program of research. Paper presented at the *System Sciences, 2002. HICSS. Proceedings of the 35th Annual Hawaii International Conference On,* 654-663.

Varshney, U., Mallow, A., Jain, R., & Ahluwalia, P. (2002). Wireless in the enterprise: Requirements and possible solutions. Paper presented at the *Proceedings of the Workshop on Wireless Strategy in the Enterprise: An International Research Perspective,* 15-16.

Varshney, U., & Vetter, R. (2002). Mobile commerce: Framework, applications and networking support. *Mobile Networks and Applications, 7*(3), 185-198.

Venkatesh, V., & Davis, F. D. (2000). A theoretical extension of the technology acceptance model: Four longitudinal field studies. *Management Science, 46*(2), 186-204.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly, 27(3)*, 425-478.

Viasasha, S. (2017). Left to their own devices: US workers and their smartphones in 2017. Retrieved from https://blog.spokephone.com/left-to-their-own-devices-us-workers-their-smartphones-in-2017

Vogelsang, K., Steinhüser, M., & Hoppe, U. (2013). A qualitative approach to examine technology acceptance.

Vuolle, M. (2011). *Measuring performance impacts of mobile business services from the customer perspective* (Doctor of Science). Available from Emerald Insight.

Vuolle, M., & Käpylä, J. (2010). Theoretical evaluation models used in mobile work context. Paper presented at the *Mobile Business and 2010 Ninth Global Mobility Roundtable (ICMB-GMR), 2010 Ninth International Conference On,* 425-431.

Wang, W., & Hsieh, J. J. (2006). Beyond routine: Symbolic adoption, extended use, and emergent use of complex information systems in the mandatory organisational context. *Proceedings of the 27th International Conference on Information Systems, Milwaukee, WI, pp 733-750.*

Wang, W., & Li, H. (2012). Factors influencing mobile services adoption: A brand-equity perspective. *Internet Research, 22*(2), 142-179.

Ward, J., De Hertogh, S., & Viaene, S. (2007). Managing benefits from IS/IT investments: An empirical investigation into current practice. Paper presented at the *System Sciences, 2007. HICSS 2007. 40th Annual Hawaii International Conference On,* 206a.

Ward, J., & Elvin, R. (1999). A new framework for managing IT-enabled business change. *Information Systems Journal, 9*(3), 197-221.

Ward, J., & Peppard, J. (2002). The evolving role of information systems and technology in organisations: A strategic perspective. *Strategic Planning for Information Systems,* John Wiley & Sons, New York, pp. 1-63.

Ward, J., Taylor, P., & Bond, P. (1996). Evaluation and realisation of IS/IT benefits: An empirical study of current practice. *European Journal of Information Systems, 4*(4), 214-225.

Waring, T. Casey, R. & Robson, A. (2015). Benefits realisation from IT enabled innovation: A capability challenge for NHS English acute hospital trusts? *Information Technology & People, 31(3), 618-645.*

White, R. W. (1959). Motivation reconsidered: The concept of competence. *Psychological Review, 66*(5), 297.

Wicks, A. C., & Freeman, R. E. (1998). Organisation studies and the new Pragmatism: Positivism, anti-positivism, and the search for ethics. *Organisation Science, 9*, 123-140.

Willcocks, L. (1994). Introduction: Of capital importance. *Information management* (pp. 1-27) Springer.

Winch, G., & Leiringer, R. (2016). Owner project capabilities for infrastructure development: A review and development of the "strong owner" concept. *International Journal of Project Management, 34*(2), 271-281.

Won, J., & Lee, G. (2016). How to tell if a BIM project is successful: A goal-driven approach. *Automation in Construction, 69*, 34-43.

Wu, P. F. (2011). A mixed methods approach to technology acceptance research. *Journal of the Association for Information Systems 13 (3),* 172-87.

Xiao, M., Meredith, R., & Gao, S. (2017). An exploratory study investigating how and why managers use tablets to support managerial decision-making. *Australasian Journal of Information Systems, 21.*

Yin, R. K. (1984). Applied social research methods series case study research: Design and methods. Series 5, Beverly Hills, CA: Sage Publications.

Yin, R. K. (2003). Case study research design and methods third edition. Applied Social Research Methods Series, 5, Beverley Hills, CA: Sage Publications.

Yuan, Y., Archer, N., Connelly, C. E., & Zheng, W. (2010). Identifying the ideal fit between mobile work and mobile work support. *Information & Management, 47*(3), 125-137.

Zmud, R. W. (1982). Diffusion of modern software practices: Influence of centralization and formalization. *Management Science, 28*(12), 1421-1431.

Zmud, R. W. (1984). An examination of "push-pull" theory applied to process innovation in knowledge work. *Management Science, 30*(6), 727-738.

Zwikael, O., Chih, Y., & Meredith, J. R. (2018). Project benefit management: Setting effective target benefits. *International Journal of Project Management, 36*(4), 650-658.

Zwikael, O., & Smyrk, J. R. (2011). *Project management for the creation of organisational value* Springer.

Zwikael, O., & Smyrk, J. (2012). Identifying key players to ensure outcome realisation. *The project as a social system Asia pacific perspectives on project management.* Monash University Publishing.

Zwikael, O., & Smyrk, J. (2015). Project governance: Balancing control and trust in dealing with risk. *International Journal of Project Management, 33*(4), 852-862.

# Appendix 1 - ARC1 Starting Benefits and Risks Template

| **Benefits of MEA** | **Metric** |
|---|---|
| Improvement of business process efficiency (agile, adaptive, time, quality, flexibility, cost) | |
| Effectiveness | |
| Convenience (system and data access) | |
| Increased productivity | |
| Improved Knowledge sharing and communication flow | |
| Removal of unnecessary tasks for business processes | |
| Data accuracy | |
| Workforce Management | |
| New work practices | |
| Reduced process lead time | |
| Improved customer service | |
| Organisation Control | |
| Improved employee satisfaction | |
| **Risks** | **Remedial Action** |
| Lack of understanding of mobile devices | |
| User resistance | |
| Technical Challenges | |
| Security Concerns | |

| | |
|---|---|
| Performance | |
| Strategic risks | |
| Organisational culture | |
| Mobile readiness | |

# Appendix 2 – Targets for ARC2

These two tables show the targets and the cost-benefit analysis which was done for the Risk MEA in ARC2.

| SURVEY COVERAGE | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Pilot | Pilot | Pilot | Pilot | Pilot | Pilot | Launch | Rollout | Rollout | Rollout | Rollout | Rollout | |
| | | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec | | |
| Total number of CL policies | Capture # | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | 150000 | | |
| Number of CL policies currently surveyed | Capture # | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | 14000 | | |
| Current Survey Coverage | | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | 9,33% | | |
| Number of additional Risk assessment reports | | 32 | 130 | 260 | 389 | 519 | 649 | 1 246 | 1 946 | 2 647 | 2 997 | **3 114** | | |
| Total risks surveyed | | 14 032 | 14 130 | 14 260 | 14 389 | 14 519 | 14 649 | 15 246 | 15 946 | 16 647 | 16 997 | 17 114 | | |
| Increase in coverage of business being surveyed | | 0,02% | 0,09% | 0,17% | 0,26% | 0,35% | 0,43% | 0,83% | 1,30% | 1,76% | 2,00% | 2,08% | | |
| Total coverage | | 9,35% | 9,42% | 9,51% | 9,59% | 9,68% | 9,77% | 10,16% | 10,63% | 11,10% | 11,33% | 11,41% | | |
| | | | | | | | | | | | | | | |
| *Assumptions* | | | | | | | | | | | | | | |
| *Cost per survey* | R 1 850 | | | | | | | | | | | | | |
| Cost saving for each risk assessment iso survey | | | | | | | | | | | | 5 760 900 | | |
| | | | | | | | | | | | | | | |
| *Admin costs for 1 person doing approx. 1000 surveys pa* | R 216 000 | | | | | | | | | | | | | |
| *Number of people required to support target* | 3 | | | | | | | | | | | | | |
| *Admin costs for persons doing approx. target surveys pa* | R 648 000 | | | | | | | | | | | | | |
| Admin cost saving for risk assessments iso surveys | | | | | | | | | | | | 648 000 | | |

## Cost-benefit analysis

| | 2016 | 2017 | 2018 | 2019 | 2020 | Assumptions |
|---|---|---|---|---|---|---|
| Benefit | | | | | | |
| Cost saving - Survey | | R 5 760 900 | R 6 106 554 | R 6 472 947 | R 6 861 324 | Cost per survey = R1850<br>Annually self-assess 3114 additional risks (as per Target worksheet)<br>3114 * 1850 = 5,760,000 |
| Cost saving - Survey admin cost | | R 648 000 | R 686 880 | R 728 093 | R 771 778 | Admin cost per 1,000 surveys = 1 person at R216,000 pa<br>Annually self-assess 3114 additional risks (as per Target worksheet) for which at least another 3 people would be required<br>3 * 216,000 = 648,000 |
| Claims saving | | R 10 000 000 | R 10 600 000 | R 11 236 000 | R 11 910 160 | Save 2 claims per year of R5m each, based on experience from Survey optimisation |
| | | | | | | |
| Gross Benefit | R - | R 16 408 900 | R 17 393 434 | R 18 437 040 | R 19 543 262 | |
| | | | | | | |
| Costs | | | | | | |
| Project costs | R -2 400 000 | R -10 000 000 | | | | |
| | | | | | | |
| Benefit before tax | R -2 400 000 | R 6 408 900 | R 17 393 434 | R 18 437 040 | R 19 543 262 | |
| | | | | | | |
| Tax (28%) | R 672 000 | R -1 794 492 | R -4 870 162 | R -5 162 371 | R -5 472 113 | |
| Net benefit | R -1 728 000 | R 4 614 408 | R 12 523 272 | R 13 274 669 | R 14 071 149 | |
| | | | | | | |
| NPV | R 24 696 623 | | | | | |
| IRR | 366% | | | | | |
| Payback period | 16,49 | months | | | | |

# Appendix 3 – Benefits and Risks Template for ARC2

| **Benefits of MEA** | |
|---|---|
| Improvement of business process efficiency (agile, adaptive, time, quality, flexibility, cost) | |
| Effectiveness | |
| Convenience (system and data access) | |
| Increased productivity | |
| Improved Knowledge sharing and communication flow | |
| Removal of unnecessary tasks for business processes | |
| Data accuracy | • Having guidelines<br>• Being less likely to miss something<br>• Asking the correct questions<br>• Knowing what to look for<br>• Getting feedback from Insure |
| Workforce Management | |
| New work practices | |
| Reduced process lead time | |
| Centralization of information | • 'Risk pool' of data if combined<br>• Information on clients can be in the same place |
| Improved customer service | • Giving the correct cover<br>• Giving accurate premiums<br>• Educate clients about risk<br>• Relationship building<br>• Increased transparency |
| Organisation Control | • Understanding risk better |
| Improved employee satisfaction | |

| | |
|---|---|
| Professionalism | • Makes the broker look more professional |
| Reports | • Ability to generate risk assessment reports for clients |
| **Risks** | **Remedial Action** |
| Lack of understanding of mobile devices | |
| User resistance | |
| Technical Challenges | |
| Security Concerns | |
| Performance | |
| Strategic risks | |
| Organisational culture | |
| Mobile readiness | |

# Appendix 4 – Financial benefits defined for Agri MEA

| *Benefit* | *2016* | *2017* | *2018* | *2019* | *2020* | *2021* |
|---|---|---|---|---|---|---|
| Assessor time saving % | 10% | 20% | 20% | 20% | 20% | 20% |
| | R 116,667 | R 1,115,100 | R 1,578,982 | R 1,676,878 | R 1,780,845 | R 1,891,257 |
| Elimination of back-office data capture | R 40,000 | R 254,880 | R 270,683 | R 287,465 | R 305,288 | R 324,216 |
| Gross Benefit | R 156,667 | R 1,369,980 | R 1,849,664 | R 1,964,343 | R 2,086,133 | R 2,215,473 |
| Software Development costs | R 2,300,000 | R 1,700,000 | | | | |
| Project cost | R 2,300,000 | R 1,700,000 | R 0 | R 0 | R 0 | R 0 |
| **Net benefit** | **-R 2,143,333** | **-R 330,020** | **R 1,849,664** | **R 1,964,343** | **R 2,086,133** | **R 2,215,473** |
| | Hurdle Rate | 20% | | | | |
| | NPV | **R 1,582,754** | | | | |
| | IRR | **44%** | | | | |

| *Assessor Productivity* | |
|---|---|
| Assessor time saving of 10% in the first 6 months | R 700,000 |
| Subsequent assessor time saving - 20% | R 1,400,000 |
| | |
| ***Back-office Support*** | |
| Saving of 1 x FTE Back-office Resource per year | R 240,000 |
| | |
| ***Other*** | |
| Inflation | 6.2% |
| IT development cost for release #1 in 2016 | R 2,300,000 |
| Benefits expected from Nov 2016 | |

# Appendix 5 – Frequency counts for Benefits and Risks word clouds from 13 interviews, 2 business cases, and 7 meeting minutes

*Table 47: Benefits count frequency*

| Code | Total | Bar Graph |
|---|---|---|
| Data accuracy | 9 |  |
| Eliminate data recapture | 8 |  |
| Process efficiency | 7 |  |
| Claims pay-out accuracy | 6 |  |
| Faster claims processing | 6 |  |
| Cost saving | 5 |  |
| Inability to measure some benefits | 5 |  |
| Workforce management | 5 |  |
| Adequate functionality to make MEA appealing | 4 |  |
| Importance of adequate training | 4 |  |
| Improving the claims calculation | 4 |  |
| Provide hardware | 4 |  |
| User resistance because of device purchase | 4 |  |
| Work process effectiveness | 4 |  |
| Assessor cost saving | 3 |  |
| Better client advice | 3 |  |
| Better risk pricing because of improved data | 3 |  |
| Better understanding of insured risks | 3 |  |
| Convenience | 3 |  |
| Data accuracy for improved underwriting | 3 |  |
| Functionality is critical for adoption | 3 |  |
| Improved risk advice | 3 |  |
| Improvement of business process efficiency | 3 |  |
| Increased sales | 3 |  |
| Resistance to change | 3 |  |
| Workforce mobility | 3 |  |
| Workforce productivity | 3 |  |
| Allow for a pilot phase | 2 |  |
| Appoint MEA champions | 2 |  |
| Better customer data | 2 |  |
| Cost avoidance | 2 |  |
| Experience with MEA | 2 |  |
| Functionality is critical | 2 |  |
| Improved control | 2 |  |
| Less underwriting leakage | 2 |  |
| Make benefits transparent for all parties | 2 |  |
| Market leadership | 2 |  |

| | | |
|---|---|---|
| User resistance to MEA | 2 |  |
| All data is centralized in one place | 1 |  |
| Automation | 1 |  |
| Being too ambitious at first | 1 |  |
| Claims handling cost saving | 1 |  |
| Competitive advantage | 1 |  |
| Data accuracy improves exposure management | 1 |  |
| Decrease time required for skilling assessors | 1 |  |
| Eliminate back-office bottlenecks | 1 |  |
| Importance of ease of use | 1 |  |
| Improved data collection for organisation | 1 |  |
| Improved UX | 1 |  |
| Increase number of surveys conducted | 1 |  |
| Increased productivity | 1 |  |
| Increases professionalism of brokers | 1 |  |
| Intangible benefits are ignored | 1 |  |
| Knowledge experts | 1 |  |
| Knowledge sharing | 1 |  |
| Loss of income for assessors | 1 |  |
| Persuade non-adopters to use the MEA | 1 |  |
| Poor adoption | 1 |  |
| Poor functional design | 1 |  |
| Poor training leads to poor usage | 1 |  |
| Process Efficiency for Farmers | 1 |  |
| Reduced effort to complete assessment | 1 |  |
| Shorter time to process claim | 1 |  |
| Survey admin cost savings | 1 |  |
| Technical challenges of MEA | 1 |  |
| Types of benefits expected from MEA | 1 |  |
| Understand user requirements for functionality | 1 |  |

*Table 48: Risk and risk mitigation count frequency*

| Code | Total | Bar Graph |
|---|---|---|
| Poor functional design | 10 |  |
| User resistance to MEA | 5 |  |
| Importance of adequate training | 4 |  |
| Provide hardware | 4 |  |
| Purchase of device | 4 |  |
| Allow for a pilot phase | 2 |  |
| Appoint MEA champions | 2 |  |
| Experience with MEA | 2 |  |

| | | |
|---|---|---|
| Make benefits transparent for all parties | 2 | ■■■■■■ |
| Importance of ease of use | 1 | ■■■ |
| Improved UX | 1 | ■■■ |
| Loss of income for assessors | 1 | ■■■ |
| Persuade non-adopters to use the MEA | 1 | ■■■ |
| Poor adoption | 1 | ■■■ |
| Poor training leads to poor usage | 1 | ■■■ |
| Technical challenges of MEA | 1 | ■■■ |
| Understand user requirements for functionality | 1 | ■■■ |

# Appendix 6 – Interview Protocol

Section 1

1. What is your role in this project?
2. Have you created MEA before?
3. What is your role in the organisation?
4. Do you have experience with BM?

Section 2

1. How were benefits identified for this project?
2. Was a process used to manage the benefits?
3. Whose responsibility was it to identify the benefits?
4. Whose responsibility was it to track benefits?
5. Who were all the stakeholders in the BM process?
6. How actively were benefits tracked?
7. Were risks identified to benefits realisation?
8. What was done to mitigate the risks?
9. Did the stakeholder participate as was expected?
10. Who is managing the benefits after implementation of the MEA?

Section 3

1. How successful was the project in delivering the benefits?
2. Would you say this was a successful project?
3. Are the benefits linked to the organisation's strategy?
4. Was the BM process followed in this project?
5. Are the organisation's strategic goals considered when identifying MEA benefits?

# Appendix 7 – Survey questions

## 1. Santam Mobile app survey

1. Which app do you use?

- ◯ MPCI app
- ◯ Agri assessment
- ◯ Self survey

2. Using the app improves my performance in my job

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

3. Using the app in my job increases my productivity

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

4. Using the app enhances my effectiveness in my job

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

5. I find the app to be useful in my job

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

6. My interaction with the app is clear and understandable

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ◯ | ◯ | ◯ | ◯ | ◯ | ◯ | ◯ |

7. Interacting with the app does not require a lot of my mental effort

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

8. I find the app easy to use

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

9. I find it easy to get the app to do what I want it to do

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

10. People who influence my behavior think that I should use the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

11. People who are important to me think I should use the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

12. I have a great deal of experience using apps

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

13. I have used apps for a number of years

| 1. less than 1 month | 2. 1-6 months | 3.7-24 months | 4. 2-4 years | 5. more than 4 years |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |

14. People who have the same job as me, who use the app, have more prestige than those that don't

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

15. People that have the same job as me that use the app have a high profile

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

16. Having the app is a status symbol in the organization

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

17. In my job, usage of the app is important

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

18. In my job, usage of the app is relevant

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

19. The quality of the output I get from the app is high

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

20. The quality of the app's output is high

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

21. I find it easy telling others about the results of using the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

22. The results of using the app are apparent to me

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

23. I believe I could communicate to others the consequences of using the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

24. I am enthusiastic about using the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

25. I would have difficulty explaining the benefits of using the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

26. I am excited about using the app for my assessments / surveys

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

27. It is my desire to see everyone using the app for assessments / surveys

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

28. The mobility of the app makes it useful in doing your job

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

29. The app saves me time when doing my job

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

30. The app give me access to information wherever I am working

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

31. The mobile device I used to do the assessment /survey is so small that I can take it anywhere

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

32. The mobile device I used to do the assessment /survey is so light that I can keep it with me everywhere

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

33. If the performance of the mobile app were improved, my usage of the app would increase

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

34. If the performance of the mobile app were improved, the app would be more useful to me

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

35. The use of the mobile app is not voluntary

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

36. We had no choice but to use the app

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

37. In my job, funding from Santam is crucial for me because with new technology, I too often risk paying a lot of money for something that is not worth much.

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

38. In my job, if a company pays for any cost to use a tablet, I will definitely use it.

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

39. Overall the mobile app is of a high quality

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

40. Overall, I would give the quality of the mobile app a high rating

| 1. strongly disagree | 2. moderately disagree | 3. somewhat disagree | 4. neutral (neither disagree nor agree) | 5. somewhat agree | 6. moderately agree | 7. strongly agree |
|---|---|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ | ○ | ○ |

# Appendix 8 – Email to survey respondents

Hi

InsureUs is conducting a survey to understand the use and needs of our brokers and assessors utilizing our mobile applications. The results are also being used as part of a PhD thesis investigating mobile apps in the Insurance industry. If you have already completed the survey, thank you and please ignore this mail. The survey takes less than 4 mins to complete and your input would be greatly appreciated. There is a draw for a R350 Takealot voucher for those that complete the survey.

**Follow this link to the Survey:**
Take the Survey

# Appendix 9 – Consent and Cover letters

**Department of Information Systems**
Leslie Commerce Building
Engineering Mall, Upper Campus
OR
Private Bag X3 - Rondebosch - 7701
Tel: +27 (0) 21 650 2261 Fax: +27 (0) 21650 2280
Internet: http://www.commerce.uct.ac.za/informationsystems/

January 2016

Request to conduct research and interview participation consent form

Dear Sir/Madam,

In terms of the requirements for completing a PhD Degree in Information Systems at the University of Cape Town a research study is required.

The researcher, in this case Henri Knoesen, has chosen to conduct a case study entitled ***Towards a process for identifying and managing the benefits of mobile enterprise applications (MEA) in the insurance industry***. The researcher would like to request permission to conduct this case study at your organization. The objective of the research is to implement a benefit management process to manage the benefits of creating and using MEAs in the organization.

Your participation in this research is voluntary. All information will be treated in a confidential manner and used exclusively for the purpose of this study. No individual names will be recorded or published. You will not be requested to supply any identifiable information, ensuring anonymity of your responses. You can choose to withdraw from the research at any time for whatever reason, in accordance with ethical research requirements.

The data collection method will be one-on-one interviews with a small group of the staff responsible for benefit management. The interviews will be conducted at Santam and will be conducted over the period of the study in one hour sessions. If you are willing to participate in this study, kindly sign the attached form and return to me at your earliest convenience.

Should you have any questions regarding this research, please feel free to contact me on 082 896-6443 or email: henriknoesen@gmail.com.

Your participation in this study would be greatly appreciated, but is entirely voluntary.

Sincerely,

**Henri Knoesen**
Researcher \ PhD Student, (UCT)
Department of Information Systems
University of Cape Town
Email: henriknoesen@gmail.com

**Assoc. Prof Lisa Seymour**
Research Supervisor
Department of Information Systems
University of Cape Town
Email: lisa.seymour@uct.ac.za

# Appendix 10 – Coding Process Examples

*Table 49: Coding process examples*

| Code | Example | Project |
|---|---|---|
| BM Process not formal | I can't speak for the greater Santam but I can say in our area we can definitely do with some improvement in managing benefits. Definitely. | Agri |
| Lack of continuous tracking | I'm going to say we would obviously do it before our steering committee so quarterly to present. I'm not going to say anymore than quarterly. | Agri |
| Product owner should own BM | H: Whose responsibility is it to manage the benefits? | Agri |
| | D: I think it needs to be co-ordinated. The business has their things that they are busy with in operations. You need ot have dedicated people from business along with the project team. I think there has to be ownership on both sides. | |
| Identified benefits of Agri MEA | So, there were only two benefits to this and the one is saving to the assessors' costs and the other is the saving on the processing costs in Bloemfontein. That is what we have and that is what we used to justify why we should go ahead with this. | Agri |
| Mandatory use of MEA | You now need this type of hammer to do this type of work. If you don't have this hammer you can't do this work. | |
| Technical challenges of MEA | I suppose we knew it upfront but the data, the quality of the network, speed. So for them to download I Bloemfontein or in some outpost took a lot of time so those are learnings. | Agri |

| | | |
|---|---|---|
| Show benefits early | I think to realize the benefits I would show the benefits earlier. | Risk |
| No measurement of benefits | It would happen as we have a steering committee meeting coming up now let's quickly Dishree would put together a slide on benefits and say come on give us some stuff. She prepares the slide and there you go. It wasn't an ongoing tracking. | Agri |
| Problems with adoption | So that meant the up-take wasn't there so even the usage targets that we set were not met. So, what's the lesson I guess that you have to understand what difference this thing is going to make and what problem it is going to solve. | Risk |

# Appendix 11 – Benefits and Risks stakeholders

*Table 50: Stakeholders impacted by benefits and risks*

| **Benefits of MEA** | **Beneficiary** |
|---|---|
| Improvement of business process efficiency (agile, adaptive, time, quality, flexibility, cost) | Organization |
| Effectiveness | Organization/ User |
| Convenience (system and data access) | User |
| Increased productivity | Organization/User |
| Improved Knowledge sharing and communication flow | Organization/User |
| Removal of unnecessary tasks for business processes | Organization |
| Data accuracy | Organization |
| Workforce Management | Organization |
| New work practices | User |
| Reduced process lead time | Organization |
| Improved customer service | Client |
| Organisation Control | Organization |
| Improved employee satisfaction | User |
| Increased sales | Organization |
| Professionalism | User |
| Reports | Client |
| Competitive advantage | Organization |
| **Risks** | **Target** |
| Lack of understanding of mobile devices | User |
| Poor adoption | Organization |
| Poor functional design | User |
| User/ Employee resistance | Organization |
| Technical Challenges | User |
| Security Concerns | Organization |
| Performance | User |
| Strategic risks | Organization |
| Organisational culture | Organization |
| Mobile readiness | Organization |